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Annual Report

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Department of

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The City of New York

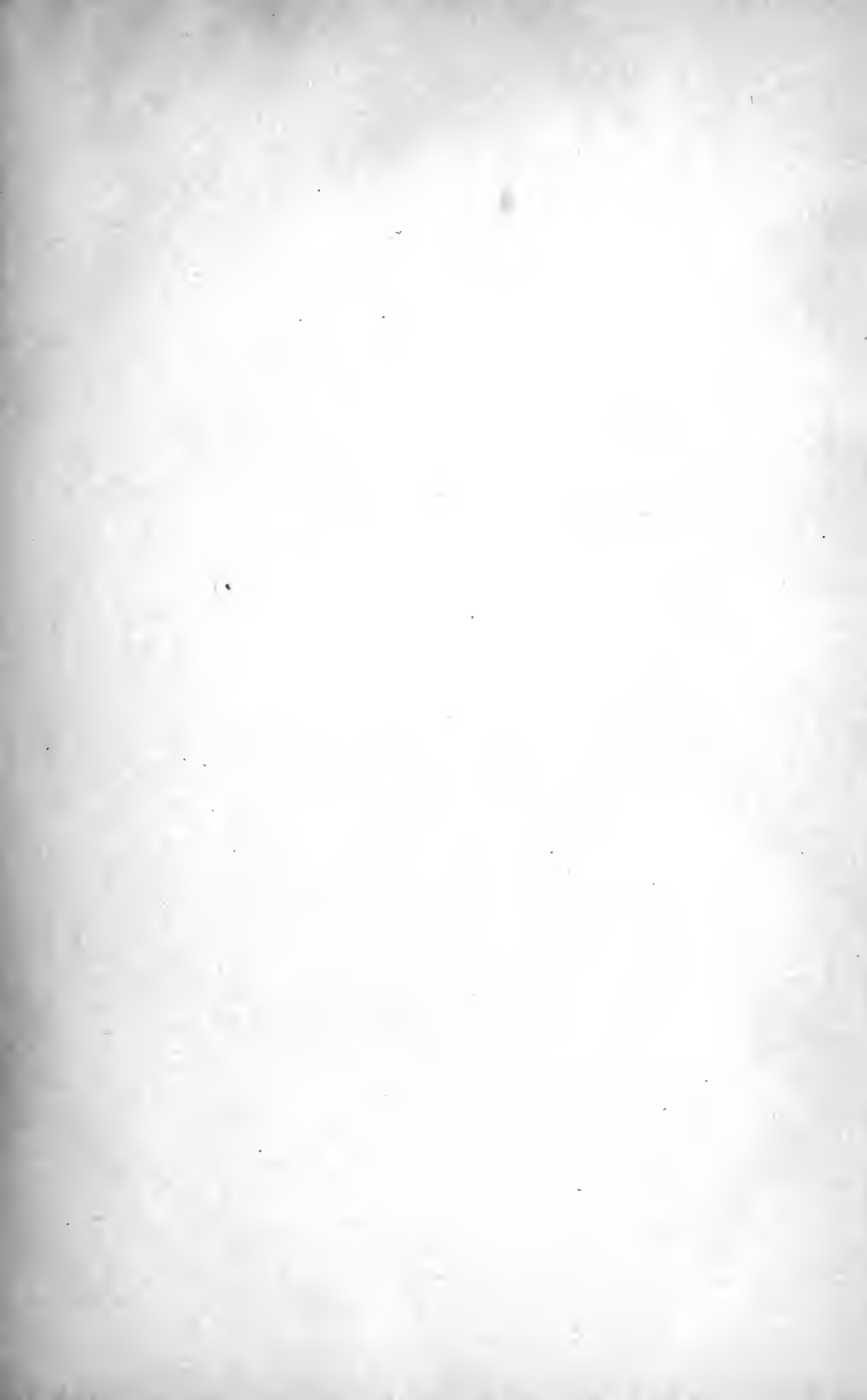
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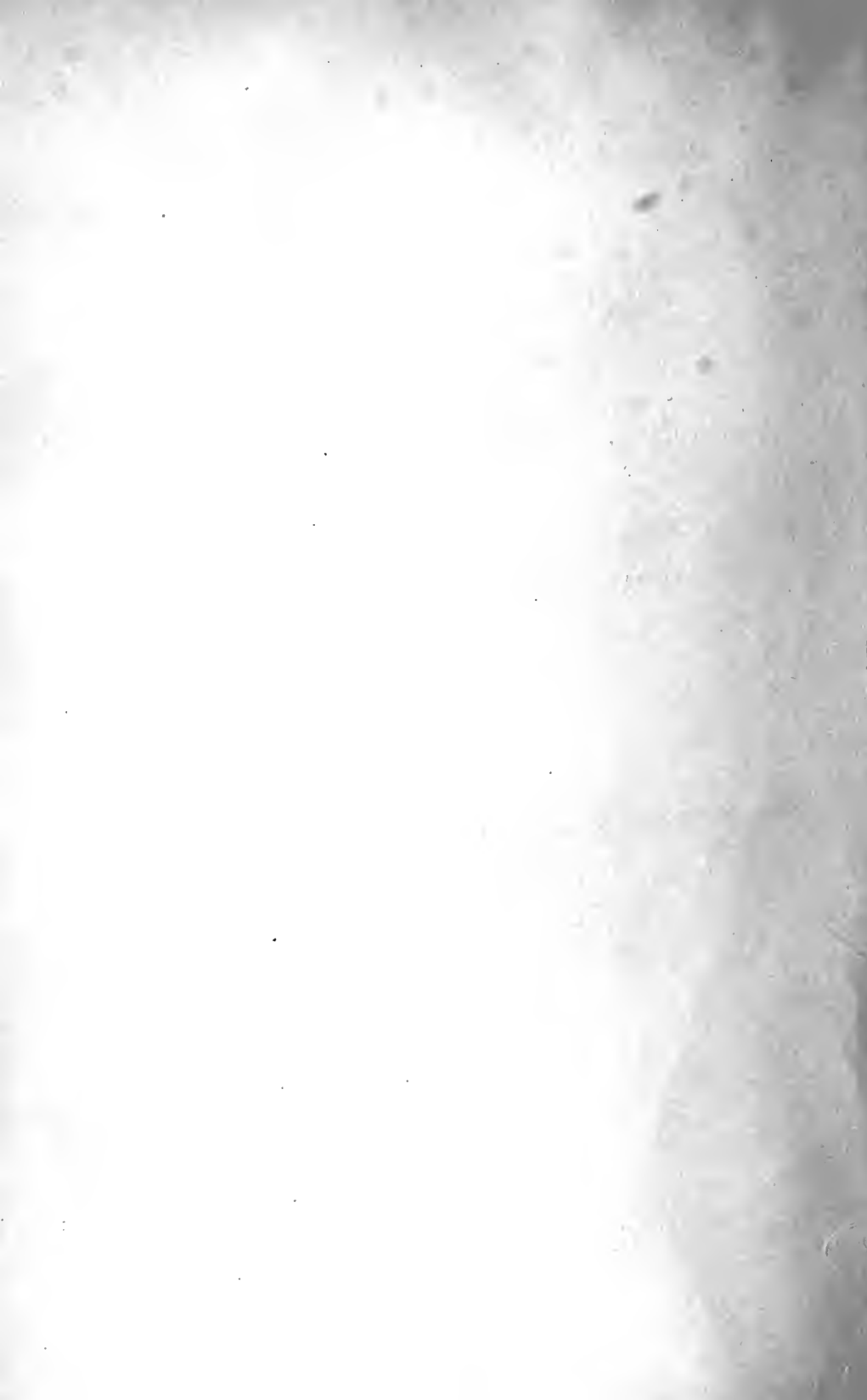




ANNUAL REPORT
OF THE
BOARD OF HEALTH
OF THE
DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK
FOR THE
YEAR ENDING DECEMBER 31, 1904.
VOLUME I.



NEW YORK:
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* Connection with Department severed August 11, 1904.



DEPARTMENT OF HEALTH.

REPORT FOR THE YEAR ENDING DECEMBER 31, 1904.

NEW YORK, December 31, 1904.

HON. GEORGE B. McCLELLAN,

Mayor of the City of New York:

SIR—In accordance with your request we have the honor to submit the following summary of the work accomplished in this Department during the year 1904:

Two factors have greatly aided in its general efficiency, the first being that your Honor has accorded hearty support to this Department in its undertakings; the second, that the press has given publicity to and aided in the formation of public opinion along lines in sympathy with the action of this Department.

SANITARY BUREAU.

Efforts have been made to improve the workings of the various divisions of this Bureau.

The number of inspections and reinspections made during the year show a total of 1,595,244, which is an increase of more than 200,000 over any previous year. There has been a considerable increase also in the number of complaints received, and in the number of arrests, and the general work has been much greater than ever before.

DIVISION OF INSPECTIONS.

The rigid supervision of slaughter houses has resulted in improved conditions. The number of permits issued for lodging houses has been practically the same for the past seven years. The systematic examination of all stables throughout the different boroughs, and especially in Manhattan, has resulted in a decided improvement in their general condition.

Barren Island, where the disposal of offal and dead animals is carried on, has been kept in as clean and sanitary condition as possible. During the year 1904 there have been 177,000 dead animals and 36,000 barrels of offal, poultry, etc., disposed of, in addition to over 500,000 tons of household and other garbage. The complaints which formerly

were frequent, relative to Barren Island, have not occurred of late, and I am glad to state that not a single complaint has been received at the Department in regard to offensive odors arising from this source during the year 1904.

The decision of the Hon. Judge Dickey in the Supreme Court declaring the section of the Sanitary Code prohibiting the issuance of smoke from the chimneys in the City to be "unreasonable, in restraint of trade, and against public policy and void," has interfered with the abatement of the smoke nuisance. For this reason the Sanitary Code has recently been amended.

The Child Labor Law, forbidding children under the age of fourteen years to work for a living, and between the ages of fourteen and sixteen only on proof of having attended a public or parochial school for one hundred and thirty days since the thirteenth birthday, has been rigidly enforced, with the result that few violations have been found. The proprietors and managers of many of the large stores, factories, etc., show a gratifying desire to comply with the law. In my opinion, however, this law is very imperfect, working an injustice in certain directions, and should be amended by the coming Legislature.

Under direction from you, on January 5, 1904, and in conjunction with the Fire and Building Departments, a thorough inspection was made of all the theatres, and orders were issued upon them for the safety of the public. Subsequently several were closed for non-compliance with these orders, and only permitted to open when all orders were complied with. This work has been steadily carried on throughout the year, until at present the theatres are in a reasonably safe condition. The effect of this work shows, especially, in the reduction of insurance rates on all the theatres.

In the outlying sections of the City a number of residents are dependent upon the wells for their water supply. These have been systematically examined, and with the co-operation of the Police Department, owners were notified to make application to the Department of Health for permits. Samples of water were taken and forwarded to the Laboratory for analysis before permits were issued. Whenever contamination was found, an order was issued directing that the use of the well be discontinued.

Numerous inspections of the water system of the various Boroughs have been made by the Inspectors of the Department, and in company with your Honor and the Commissioner of Water Supply, we made an investigation of the watershed. The careful investigation of the lakes in Central Park, with the subsequent application of proper remedies has resulted in a more sanitary condition of these waterways than has existed for many years.

Wherever practicable, ponds, swamps and pools of stagnant water have been drained or filled; but to properly care for all the various deposits of water within the City limits where mosquitos breed would require a vast expenditure of money. In some cases petroleum was used with beneficial effect

DIVISION OF CONTAGIOUS DISEASES.

A great volume of work has been accomplished by this Division, which is divided into District medical inspection, medical inspection of schools, district nursing, school nursing, vaccination, summer corps work and the diagnosis of contagious diseases, disinfection, diagnosis and the destruction of glandered horses.

The increase in the number of contagious diseases reported during the first six months of this year, added largely to the work not only in this division, but in that of the Hospitals and Disinfecting Stations.

The number of cases of communicable diseases reported during the year 1904 in comparison with the year 1903 is shown in the following table:

	Year 1903.	Year 1904.
Measles	13,689	32,861
Diphtheria and Croup.....	18,317	18,158
Tuberculosis	15,214	18,723
Scarlet Fever.....	10,887	13,495
Typhoid Fever.....	3,671	3,412
Smallpox	67	82

The number of examinations of school children during the year was 12,236,050. The number of children excluded for various causes was 25,369.

There has been a material diminution in the number of cases of trachoma, favus, scabies, pediculosis and ring worm. On November 28, 1904, the medical school inspectors began the systematic testing of the vision of all school children. Two qualified inspectors were detailed to supervise this work. The result shows that 20 per cent. of the school children showed defective vision.

The time is now proper, I think, for the Department to extend the work of the Medical School Inspectors so as to include the examination of the hearing of the children and for serious physical defects. The number of treatments given to children for the year was 470,183. The work of the school nurses has been excellent.

The Summer Corps during the past summer visited about 270,000 families and instructed them verbally as to the proper method of feeding infants and young children. This work has been productive of excellent results.

The number of patients removed to the hospitals suffering from contagious disease was 5,577 in comparison with 3,908 for 1903, and the number of houses visited for disinfection was 64,226 as against 37,317 in the preceding year; the number of rooms disinfected was 92,698.

Very few cases of smallpox originated within the greater City of New York, nearly all the cases having come from outside sources. The vaccinations have progressed as heretofore.

BACTERIOLOGICAL LABORATORY.

The work of this Laboratory, which includes the antitoxin administration, intubation and the medical inspection of typhoid fever, tuberculosis, pneumonia, cerebro-spinal meningitis and the clinical treatment of tuberculosis is highly satisfactory, but the steady increase in its scope and work calls for an increased clerical, medical and laboratory force. Various branches for the sale of antitoxin have been established throughout the City.

ANTITOXIN.

One of the products of the Laboratory of the Department is antitoxin for diphtheria. During the summer of 1903, the sale of this antitoxin to parties outside of the City was discontinued. As the Research

Laboratory depends largely upon the sale of this product for its maintenance, and as the Board was urged by other cities, owing to the high price of antitoxin (principally the City of Chicago), to establish the old relations, the sale was recommenced in January.

The deficiency which existed was made up the latter part of the year by the Board of Estimate and Apportionment. The work of the administration of antitoxin has been carried on day and night by selected men especially trained for the work, and the physicians of the City have taken advantage of this free distribution of antitoxin to such an extent that it has been necessary to assign four more physicians to this duty. These curative injections of antitoxin number one-half more than any previous year, and the mortality has been decreased one per cent. of the whole death rate. The case fatality in Manhattan is over 10 per cent., while the case fatality in tenement houses treated by the Inspectors of the Department at the request of the attending physician (which cases amount to over 3,700 for the year) is only 5.7 per cent.

TUBERCULOSIS.

From January 1 until noon yesterday, December 29, 1904, 12,686 new cases of tuberculosis have been reported to the Department. These cases, added to those already known and making allowance for those cases unreported and those who died during the year, renders it probable that within the limits of Greater New York there are between twenty-five and twenty-eight thousand living cases. The Board of Health is making every effort to prevent the spread of the disease, and to assist in the cure of those now suffering from it. With this idea in view, early in the present year the Board of Health opened a clinic for the care of these cases, the object of the clinic being to secure the observation of these cases, to teach them how to get well (if in the curable stage) and if not, at least how to live with the disease and, at the same time, not to communicate it to others. Up to this date 2,613 cases have come under the care of the Department. To this clinic is attached a corps of trained nurses for the supervision of cases at the homes of the patients. Literature containing instructions in ten different languages has been distributed.

For the further care of these cases it is necessary to establish a municipal sanitarium. Many times during the year we have endeavored

to locate a site for such an institution, and much time has been spent in this endeavor, but as yet no proper place has been secured, as the present law relative to the location of a sanatorium is practically prohibitive.

COMMISSION FOR INVESTIGATING ACUTE RESPIRATORY DISEASES.

For some years the problem presented by the large and constantly increasing death rate from the acute respiratory diseases has been the cause of serious anxiety to the Board of Health.

This problem has long been recognized as one of first sanitary importance, and efforts have frequently been made to find some method for its solution. In the present year there has been an extraordinary increase due to these diseases, the death list forming no less than 23 per cent. of the total death rate for the first half of the year. As a study, properly undertaken, of the best methods of preventing these diseases would not only be a great benefit to the City but of national importance, the advice and assistance of the best known medical men in the country was secured. Application was made in July to the Board of Estimate and Apportionment to appropriate the sum of \$10,000 for the purpose of defraying the expenses of a commission to confer with the medical members of the Board to investigate this problem. The request was granted. The following distinguished physicians consented to serve:

Dr. William Osler and Dr. William H. Welch, of the Johns Hopkins University, Baltimore; Dr. Edward C. Janeway, Dean of the University and Bellevue Hospital Medical College; Dr. T. Mitchell Prudden and Dr. L. Emmett Holt, of the College of Physicians and Surgeons, New York City; Dr. Frank Billings, Dean of the Rush Medical College, Chicago; Dr. John H. Musser, University of Pennsylvania, Philadelphia, and Dr. Theobald Smith, Harvard University, Boston.

This Commission at present is investigating this subject. It is not likely, however, that they will arrive at definite conclusions this winter.

CHEMICAL LABORATORY.

The work of this division consists principally of the analysis of milk and water. Considerable attention has been given to obtaining a pure

milk supply, and requests have been made of the courts that heavier fines be imposed in cases where adulteration of milk is found. In conjunction with the Health Commissioner of Buffalo the matter has been carried to the source of the supply in this State, and much good has already been accomplished by inspections from the source to the consumer.

HOSPITALS.

The unusual number of contagious diseases with which this City was afflicted in the spring entailed a great deal of additional work on the hospitals and taxed them to their utmost capacity. The work on the new scarlet fever pavilion at Willard Parker Hospital having been delayed owing to strikes, the wards in the Kingston Avenue, Willard Parker and Riverside Hospitals were unusually congested.

During the past year the premises at the Kingston Avenue Hospital in Brooklyn have been cleared and generally improved, the front of the property graded and terraced, the trees and hedges set back to provide for street widening; considerable filling in has been done around the new disinfecting station, and many repairs have been made along the Rutland road and Albany avenue frontage. All the ward buildings, administration buildings and dormitories have been furnished with new sheds, stoops, storm doors, and the steam heating apparatus has been reconstructed and put in perfect order. The stable was repaired and a furnace for the garbage crematory was built. A new brick and limestone building has been erected adjoining the new boiler house for the storage of coal, with a capacity of 2,000 tons; also a new brick pavilion which will accommodate 80 patients. A brick building which will afford accommodation for 80 nurses is also in the course of erection and will be finished in the early spring. The second story of the disinfecting station has been fitted up for a bacteriological laboratory.

At the Willard Parker Hospital the grounds have been put in order and the work pushed on the new bacteriological laboratory and scarlet fever hospital. A roof garden has been placed on the roof of the boiler house; several of the wards renovated and the boiler house thoroughly overhauled and put in order. The vaccine laboratory and calf stable have been repaired and painted. The Willard Parker Hospital proper has been painted throughout. All the wards have been renovated and

equipped with modern toilets and baths. The Reception Hospital has also been painted and equipped with many new appliances. The stable has been painted, cleaned, and put in first-class condition. The improvements at North Brother Island include the completion of the Nurses' Home; the construction of the laundry building; a coal house; a scale house; the moving and reconstruction of two houses to be used for a disinfecting station and a drug room; the installing and completion of the new engine, disinfector and other fixtures at the One Hundred and Thirty-second street Dock building; the remodeling of Pavilions Nos. 1, 3, 4, 5 and 6; the painting of Pavilions Nos. 8, 9, 10, 11 and 12, and the construction of the storeroom at the south end of the Island.

In the spring, at One Hundred and Eighteenth street and Pleasant avenue, we opened a new trachoma hospital for the treatment of trachoma alone. Since the hospital has been opened there have been 3,765 patients treated and 31,876 revisits. The decided diminution in the number of cases of trachoma among the school children, I think, may be attributed to the excellent work done by the several corps of physicians engaged in this work.

The number of patients cared for at the Willard Parker Hospital during the year 1904 was 1,402; at the Kingston Avenue Hospital, 1,918; at the Riverside Hospital, North Brother Island, 2,405.

A drug laboratory has been established in the basement of the tuberculosis clinic, and plans have been formulated for furnishing the drugs to all of the hospitals of the Department, which will undoubtedly afford a considerable saving of money.

BUREAU OF VITAL STATISTICS.

There has been a considerable increase in the number of births, deaths and marriages reported during the year. This will probably result in the necessity of appointing additional clerks. There are in this Bureau no proper indices from the year 1866 to 1890, and there seems great necessity for re-indexing the records. The law compelling the presentation of a record of birth to obtain a certificate of employment for children between the ages of fourteen and sixteen, and the rule of the Department of Education requiring a statement from this Bureau as to the birth of children applying for admission to the lowest

classes in the school, served to draw considerable attention to the incomplete returns of births in this city, and to the lack of proper indexing. A search of the records at the present time often requires many hours, where a few minutes would suffice if they were properly indexed. To do this would require the sum of about \$24,000. In 1903, the searches amounted to 36,074, and the number of transcripts issued 28,673. In 1904, the number of searches was 68,824; the number of transcripts issued 36,468, which represents an increase of 2,600 from fees collected.

BIRTHS, DEATHS AND MARRIAGES.

Circular letters were sent to all the physicians of the City, calling attention to the necessity of complying with the law of registering births, which had a very beneficial effect. During the year there were 99,555 births reported, an increase of 4,800 over the number reported during last year.

There has been an increase of 10,196 deaths. This has been due largely to the increase in pneumonia and acute respiratory diseases. The increase in population, the severe epidemic of measles, the epidemic of cerebro-spinal meningitis (which has not visited us in the same manner since 1872), the Slocum disaster and the increase in nephritis (Bright's disease) account for nearly all of the remainder.

There has been some increase in tuberculosis, and the deaths from diarrhoeal diseases were far more numerous, emphasizing the necessity for vigorous action in a pure milk supply, as this increase was principally among the infant population.

The increase in the number of marriages reported is 2,262.

PENSION FUND.

The pension fund has been increased to \$160,640.72. The expenditures during the year have amounted to \$12,125.40, the balance on hand at this time being \$148,515.32. The net increase in the fund over the balance reported on December 31, 1903, is \$14,266.54. The number of pensioners now on the roll is 23. Five have been added during the year.

THE SLOCUM DISASTER.

On June 15, the Slocum disaster occurred on North Brother Island, which is under the jurisdiction of the Department of Health. I cannot

commend too highly the promptness and efficiency with which the employees of the Department aided in the work of rescuing the unfortunates and caring for those injured. The survivors were furnished with blankets and clothes from the hospital stores, and I am happy to state that not one case of contagious disease arose from the use of these hospital supplies.

The work of recovering bodies proceeded for several days, during which time the Department cared for the employees of other Departments who assisted in this work. The total expense to this Department was over \$10,000.

THE ST. LOUIS EXHIBIT.

Both Bureaus and all the divisions of this Department were represented in this exhibit, which consisted of a number of framed photographs, showing the work of the Department, many charts illustrating the sanitary supervision of the City, and large cabinets filled with photographs, samples of blank forms, culture tubes, etc. One of the grand prizes was awarded the Department.

THE ADVISORY BOARD.

Meetings of the Advisory Board have been held whenever the exigencies of the occasion required.

In conclusion, I wish to call your attention to the fact that not one of our office buildings is owned by the City. We are in leased offices in each of the five boroughs. In addition to this fact there is not one of them that is fireproof; the records of this Department are thereby endangered, and there are no more valuable records than those of the births, marriages and deaths.

Respectfully submitted,

THOMAS DARLINGTON,
Commissioner and President of the Board of Health.

ALVAH H. DOTY,
Health Officer of the Port.

WILLIAM MCADOO,
Police Commissioner.

CITY OF NEW YORK, DEPARTMENT OF HEALTH, }
 December 31, 1904. }

Dr. THOMAS DARLINGTON,

President, Department of Health:

SIR—I have the honor to forward herewith my report for the year 1904. The investigations which have been undertaken by the Department during the last two years with reference to the cause of typhoid fever in New York City have shown very conclusively that, so far at least as the Boroughs of Manhattan and The Bronx are concerned, the influence of city water as a factor in the causation of this disease may be excluded; and further investigations have shown pretty clearly that in a very large proportion of all cases in which the disease was contracted within the city limits infection has in all probability resulted either from the ingestion of infected milk or infected oysters, or from contact. The studies which have been carried on during the past year in the laboratories with relation to oysters as a possible source of infection have made evident the fact that this is not only a theoretical source of danger but a very present one; and this is further emphasized by the inspection and chemical and bacteriological examinations of the waters overlying the oyster beds in the vicinity of New York, which indicate the presence of sewage in greater or smaller percentage in a very large proportion of instances. Some regulations should be established with relation to the introduction and sale of oysters in this city, and I would commend this subject to the careful consideration of the Board during the coming year.

Some very important original investigations have been carried on in the Research Laboratory during the past year with reference to several of the infectious diseases, especially rabies, scarlet fever, variola and dysentery, aside from the studies made in connection with the Commission on the Acute Respiratory Diseases, which only began in November.

The results of the work on dysentery, carried on in connection with the Rockefeller Institute for Medical Research, have been somewhat of

a disappointment, in showing that the probable value of a specific serum in the prevention and treatment of this disease is much less than had been anticipated. Some very important investigations, however, have been carried on with relation to the colon bacillus, the Shiga bacillus and other dysentery-like bacilli found in the stools of apparently healthy children.

Important changes have been made during the past year in the administration of the hospitals of this Department, which have resulted in greatly increased efficiency in their conduct. In common with other sanitary authorities it has been the practice of the Department of Health in the past to discourage, as much as possible, the visits of friends to patients under treatment in the contagious disease hospitals. As experience had convinced us that most of the contagious diseases were practically not transmitted to any considerable extent through the medium of a third person, and as experience had further shown that parents were very unwilling to allow their children to be taken to the hospitals because they were unable to visit them during their illness (excepting in cases of probably fatal illness), it was determined during the past year to make arrangements to facilitate visiting in the hospitals, with a view to removing the popular prejudices against these hospitals. Consequently, regular visiting days at all the hospitals were arranged (excepting for the small pox pavilions), and whenever patients were removed from their homes to any of the hospitals of the Department passes were left so that two adult members of the family could visit the sick one on any of the three visiting days arranged in each week for each of the different contagious diseases. Special regulations were formulated as to the precautions to be taken during the visits. The result in every respect has been most satisfactory. We now have very much less difficulty in the tenement house sections, where the conditions for isolation are unfavorable, in inducing parents to allow their children to be removed to the hospitals, and the greatest satisfaction has been expressed by parents and by patients as to the care received in the hospitals. No disadvantages have arisen as the result of the free admission in this way of friends to the institutions. The people of the tenement house districts are coming more and more to regard the contagious

disease hospitals in the same light as they regard other general hospitals, and the feeling and prejudices in relation to the old "pest house" of early days are rapidly passing away.

It was hoped at the beginning of the year that the new pavilion for the care of scarlet fever patients would be completed before the end of the year, but in this the Department has been disappointed, owing to delays of various sorts, and it now seems probable that it will not be available for the care of patients until the middle of 1906, or later.

An important change in the administration of the hospitals consisted in the assignment of experienced and competent physicians from the medical staff of the Department to daily attendance at the hospitals. Dr. William E. Studdiford was placed in medical charge of the Willard Parker Hospital for diphtheria, Dr. Edwin J. Richardson was placed in charge of the Riverside Hospital, and Dr. Henry F. Koester of the Kingston Avenue Hospital. These men have been connected with the Department for many years, are experienced, competent and discreet, and they have been made directly responsible to the medical officer of the conditions in these institutions.

The average number of patients under treatment in the different hospitals of the Department during the last year has been much greater than in any previous year and the results have been better. The tuberculosis pavilions at Riverside Hospital have been crowded to their fullest capacity continuously and most of the time there has been a long waiting list. Of course, in this institution vacancies are always made for cases of tuberculosis which it becomes necessary to remove forcibly from their homes, because of the unfavorable sanitary conditions existing and because these consumptives are a serious menace to other persons.

In November a Supervising Nurse was appointed and assigned to Riverside Hospital to have a general supervision of the nursing in all the hospitals of the Department. It is hoped that she may bring up to a much higher standard the general nursing in the hospitals, which has not been at all times entirely satisfactory.

One of the most important occurrences of the year was the opening of the new Clinic for the Treatment of Communicable Pulmonary Dis-

eases, in the building specially erected for this purpose and adjoining the main office of the Department of Health, Borough of Manhattan. This has been an unqualified success from the very beginning, owing largely to the intelligence and industry shown by the associate directors—Dr. John S. Billings, Jr., and Dr. S. A. Knopf. An average of nearly fifty patients a day have been treated at the Clinic during recent months, and it has made possible a much closer and more continuous supervision of a larger number of cases than was previously possible. It has also been of great assistance in facilitating the admission of patients to the institutions for the care of consumptives and has been especially employed for the examination and admission of all patients from New York City to the State Hospital for Incipient Tuberculosis at Ray Brook.

The completion of the new Nurses' Home at Riverside Hospital during the early part of the year has very greatly relieved the old crowded condition in this institution and made it possible to secure the services of a somewhat higher class of nurses than was previously employed. Another factor in this improvement has been the increase in salary of the nurses in the various institutions, which was made soon after your installation as Commissioner of Health. The wages now paid (\$40 a month) are, in my opinion, much too little, when we consider the arduous character of the duties of the nurses in these institutions and the constant dangers to which they are exposed in the care of contagious disease. During the past year, as has been the experience in previous years, quite a large number of nurses and three or four of the physicians on the staff of the various hospitals have contracted contagious diseases, and in some instances have been dangerously ill. No deaths have occurred, I may happily say, but all have not recovered their full measure of health. One physician, who is now Assistant Resident in one of our hospitals, has a serious organic disease, resulting from an attack of diphtheria contracted while on duty. One nurse has been relieved from duty because of pulmonary tuberculosis which she has contracted while in the service. One of the Assistant Bacteriologists in the Department, who is suffering from pulmonary tuberculosis, has been assigned to duty at Riverside Hospital and placed in charge of the tuberculosis pavilions, in the hope that more favorable

surroundings and the conditions existing there may be of material benefit to him.

One of the most important events of the year in the history of the Department has been the appointment by the Board in August of a Medical Commission for the investigation of acute respiratory diseases, with a view to the restriction of the prevalence of these diseases in New York City. At that time I presented to the Board a communication outlining the conditions and recommending that action be taken by the Board along this line. For some years the problem presented by the very large and constantly increasing death rate from this class of disease has been the cause of serious concern to the Medical Officers of the Department, and in August, 1904, with the consent of the Mayor and the Board of Estimate, the Board of Health appointed a Medical Commission to conduct an investigation as to the causes for the great prevalence of the acute respiratory diseases in New York City with the hope that some means could be devised for reducing the excessive morbidity and mortality from this cause.

The problem has long been recognized as one of the first in sanitary importance, and efforts have frequently been made to find some method for its solution. The inherent difficulties of the problem, however, are so great and the other questions pressing for consideration have been so numerous and important that no determined efforts have hitherto been made to discover means or devise methods to effectually meet the situation.

Succinctly stated, the situation is this: During the last twenty years the general death rate in New York City has fallen 25 per cent. and the death rates from all the principal causes of deaths have fallen from 10 per cent. to 40 per cent., excepting in four groups of diseases in which there has been an increase. These are: First, the acute respiratory diseases; second, cancer; third, the diseases of the heart and blood vessels; fourth, the diseases of the kidney. The increases in these groups have been from 10 per cent. to 30 per cent. or 35 per cent.; in the acute respiratory being from 10 per cent. to 15 per cent. In the first half of 1904 there was an extraordinary increase in this group, the deaths from the acute respiratory diseases alone forming no less than 23 per cent of the total death rate.

The importance of the situation, so far as this group is concerned, is more forcibly brought out when we compare the percentage which the total deaths from the acute respiratory diseases bear to the total deaths from all causes. In 1883 it was between 7 and 8 per cent. and in 1893 nearly 16 per cent., showing a relative increase during this period of more than 100 per cent.

A consideration of the etiology of the acute respiratory diseases brings out even more strongly the sanitary importance of the problem. There can now be no question that the exciting cause in each one of the diseases of this group is a micro-organism, which requires such conditions for its growth and multiplication as are usually found only in the living body. These organisms do not, under natural conditions, multiply to any extent outside of the tissue of cavities of the body. The infection, therefore, when it occurs, must practically always be the result of communication, directly or indirectly, from one human being to another. The conclusion, therefore, seems justifiable that these diseases are essentially communicable and however great the inherent difficulties of the problem may be, theoretically, at least, they should be to a greater or less extent preventable.

The difficulties in the way of prevention arise largely from the wide distribution of these organisms. Streptococci, pneumococci, influenza bacilli, singly or combined, are present in almost all morbid conditions in the respiratory tracts of the inhabitants of large cities, and probably also to a very large extent in the respiratory tracts of healthy individuals. The situation is much like that existing with relation to diphtheria, excepting that these organisms probably live more readily and for longer periods of time in the body cavities of healthy individuals than do the diphtheria bacilli, and the latter, perhaps have (at least in children) greater pathogenic activity.

The Board of Health, looking forward to the study of this problem in the revision of the Sanitary Code, made in 1903, included this group of diseases in the class in which partly voluntary and partly compulsory notification was required. This provision of the Sanitary Code, however, has not yet been enforced. It is believed now that provision can be made for this.

It has always been the feeling of the medical officers of the Board that no really important effective measure could be taken in relation to any preventable disease unless the sanitary authorities first had some fairly comprehensive information as to the prevalence and distribution of the disease—such information as can only be gathered from the systematic notification of cases.

As the problem under consideration is not simply one which concerns New York, but one which almost equally concerns all the large cities of the United States, it was felt to be important that the Commission should have a distinctly representative character, in the hope that influence which it would exercise would be broader and more effective. As it seemed desirable to the Commission to carry on investigations in other laboratories in other cities, suitable arrangements were made for defraying the expenses of these investigations by the Department of Health of New York City. The facilities of the laboratories of the Department of Health were also placed at the command of the Commission for assisting in various lines of investigation in New York.

Respectfully submitted,

HERMANN M. BIGGS, M.D.,
General Medical Officer.

DEPARTMENT OF HEALTH, CITY OF NEW YORK,
 SOUTHWEST CORNER OF 55TH STREET AND SIXTH AVENUE,
 BOROUGH OF MANHATTAN,
 NEW YORK, December 31, 1904.

To the Honorable The Board of Health:

GENTLEMEN—I have the honor to submit herewith a report of the work performed in the office of the Secretary for the year ending December 31, 1904, as accomplished under the supervision of the Chief and Auditing Clerk of the Department of Health and the Assistant Chief Clerks assigned to duty in the various boroughs of the City. From it it is easy to appreciate the great amount of labor the work has entailed, and the increase in the business of the Department as compared with former years.

A perusal of the reports of the Sanitary Superintendent and Registrar of Records will elicit the same information as regards the work of the bureaus under the charge of these officials.

This increase has made necessary the employment of more persons than have been in the service of the Department at one time during the whole course of its existence, and to accommodate them additional offices have had to be provided. The building now occupied by the Department as a headquarters building, at the southwest corner of Sixth avenue and Fifty-fifth street, in the Borough of Manhattan, was assigned to it by the Honorable the Commissioners of the Sinking Fund in 1899. It had previously been assigned to and fitted up for the use of the Bureau of Buildings, and when the Department of Health took possession, in the month of August of the year mentioned, it found the arrangements little suited to its purposes. Since the year 1899 a one-story building has been erected on the lot adjoining on the south, for the use of the Department as a clinic for the treatment of persons suffering from pulmonary diseases.

This is in a section of the city which is essentially a residential and apartment hotel district. In a word, the Department of Health has

outgrown its present headquarters and it seems relevant at this time to bring to your notice the necessity for a building more adapted to the needs of a department the importance of which is second to no other in The City of New York, to be located in a section of the city more accessible to persons having business to transact with it and more desirable for the purpose.

It is understood the building located at the southeast corner of Lexington avenue and Twenty-third street, belonging to the City and at present occupied by the College of the City of New York, will be vacated by the college upon the completion of the new college buildings on Washington Heights, about one year hence. This site, upon which this old college building rests, is of sufficient size to answer the purposes of the Department of Health, making allowance for the growth in population of the City for the next twenty-five years. It is convenient to all the principal lines of travel, surface, elevated and underground, and does not possess the undesirable features of a strictly residential district.

It is respectfully recommended, therefore, that the Board take such steps as will be necessary to acquire the site last mentioned and provide for the erection of a suitable building thereon, which will be adequate for the uses of the Department of Health, in order that the same may be occupied by or before the expiration of the lease for the present headquarters building, on April 30, 1909.

Respectfully submitted,

EUGENE W. SCHEFFER,

Secretary.

NEW YORK, December 31, 1904.

EUGENE W. SCHEFFER,
Secretary, Board of Health:

SIR—I have the honor to submit herewith a report of the work performed in the office of the Chief Clerk during the year 1904.

The record of this office for the year is one of increased activity along all its many lines. In addition to the work detailed in the report for 1903, there has been added to the work of this office the charge of the inspectors whose duty it is to look after the new building work and repair work constantly going on.

INSPECTORS IN CHARGE OF CONSTRUCTION AND REPAIRS.

There are four men in this corps. Two have been constantly detailed at the foot of East Sixteenth street; one man was assigned to the new Scarlet Fever Pavilion, while the other man has been looking after the Laboratory Building, the new Administration Building, and the sundry repairs and alterations to the old buildings on these grounds. One man has been constantly detailed to the new buildings being erected on the grounds of the Kingston Avenue Hospital, Borough of Brooklyn. The fourth man has exercised a supervision over the other three and has, at the same time, inspected the work at North Brother Island and the office buildings, stables and disinfecting stations in all the boroughs.

In addition to the new buildings mentioned at the foot of East Sixteenth street, there have been erected during the year a Scarlet Fever Pavilion and a Nurses' Home at the Kingston Avenue Hospital; a new Laundry Building and a Rest Cure Pavilion at North Brother Island. New buildings which were commenced during 1903 and which have been finished during this year are the Scale House and Coal Storage Building, also at North Brother Island; the Disinfection Building, Boiler House and Coal Storage Building at the Kingston Avenue Hospital. With the exception of the work on the Scarlet Fever Pavilion at the foot of East Sixteenth street and the Rest Cure Pavilion at North Brother Island, there has been very little trouble with the contractors.

The work of this corps has been most satisfactory and of lasting benefit to the Department. There is needed another man who has had experience in draughting. There is constant call for plans and specifications of one kind and another for repair work to the various buildings, and at the present time we have no one who can devote his time to this work.

DRUG LABORATORY.

Another additional feature to the work of the Chief Clerk's office has been the establishment of a drug laboratory in the basement of the Tuberculosis Clinic.

Early in the year the clinic for the treatment of pulmonary diseases was opened and such medicines that were furnished to the patients were supplied by neighboring drug stores on prescriptions written by the clinic physicians. The number of patients treated at the clinic increased to such proportions that the amount of money necessary to pay for their medicines was so large that it was deemed advisable to start our own drug laboratory. The basement was roughly fitted up and work started by some of the men in the Chief Clerk's office in addition to their other duties. During the first month of its operation the total cost for all the prescriptions filled was \$62, for which we should have probably had to pay between five or six hundred dollars at the drug stores. This sum of \$62, however, did not include labor. No additional cost for labor was incurred, the men in the Chief Clerk's office working overtime to do this extra work. The service for the clinic has been so satisfactory that at your direction plans have been formulated for furnishing the drugs to all of our hospitals. Additional facilities have been provided in the basement of the clinic and our men are now working upon the materials for filling the requirements of all our hospitals. We expect to take care of their needs from the first of January.

There has been some little trouble about the distribution of the medicines on these prescriptions in the clinic, largely due to the fact that the charge of this work has been constantly changing from one person to another. The system of checking up the prescriptions with the stock, however, has been so perfected that at the present time there is comparatively little trouble.

ORGANIZATION CHART.

In the early part of the year, with the help of the Assistant Sanitary Superintendent in the Borough of Manhattan, an organization chart was prepared with the original intention of having it forwarded to the Exposition at St. Louis. The draughtsman employed was so slow, however, in finishing his work, that it was decided not to forward it to St. Louis.

From this chart a form was perfected which has been printed, and copies have been distributed to each of the inspectors, clerks and employees other than laborers, throughout the Department. These employees have been notified that hereafter promotion examinations will be based wholly or in part upon questions to be formulated from the facts on this chart. It is thought that a study of the matter printed thereon will help materially in the work of the Department.

ST. LOUIS EXPOSITION.

This office, along with the other branches of the service, prepared an exhibit for the Exposition at St. Louis. Two of the Assistant Chief Clerks were detailed at different times to go to St. Louis and assume control of the exhibit. A clerk from the Registrar's office was first detailed, and was followed by the Assistant Chief Clerk from the Borough of Manhattan. The Assistant Chief Clerk from the Borough of Richmond assumed control from the 10th of November, and remained until the close of the Exposition.

ASSISTANT CHIEF CLERKS.

Early in the year the Assistant Chief Clerk from the Borough of Brooklyn was retired on a pension, after a service of twenty years. He was succeeded by Mr. Metcalfe, formerly the payroll clerk, who has served the Department for over nineteen years. Since this change was made there was a marked improvement in the manner in which that office has been conducted.

I had occasion in the 1903 report to speak of the careless way in which the stationery supplies in the Borough of Brooklyn had been

kept. This has all been straightened out and things are kept now in a very orderly and systematic manner.

The work in the other offices has been much the same as in previous years. The quantity of work increases from year to year, and the quality improves at the same time.

The annual reports of the Assistant Chief Clerks are transmitted herewith. They all show an increased number of communications received at the respective offices, and an increased number of orders issued.

On March 1 the new rule went into operation charging fees for the searches of records of sanitary orders issued against premises throughout the city. The receipts have been quite beyond expectation. They are as follows:

Borough of Manhattan, March 1 to December 31.....	\$769 10
Borough of The Bronx, March 1 to December 31.....	171 00
Borough of Brooklyn, March 1 to December 31.....	51 00
Borough of Queens, March 1 to December 31.....	.....
Borough of Richmond, March 1 to December 31.....	1 50

The receipts for searches and transcripts of records of births, marriages and deaths have been as follows:

Borough of Manhattan.....	\$10,741 60
Borough of The Bronx.....	1,000 20
Borough of Brooklyn.....	4,999 00
Borough of Queens.....	357 00
Borough of Richmond.....	158 90

The Assistant Chief Clerks in The Bronx, Brooklyn and in Queens call especial attention to the fact that the buildings in which their offices are located are not adapted to the wants of this Department. The building in The Bronx is a three-story frame dwelling and is not sufficiently large to properly care for all the work conducted in that borough. In addition to this fact, it is not fireproof, and our valuable records, while in safes, are still not adequately protected from fire. The building in the Borough of Brooklyn is in a disgracefully unsanitary condition. A contract was prepared, advertised and bids opened for placing the building in a proper condition. We have, up to the present time, failed

to obtain the necessary money from the Board of Estimate and Apportionment to enable us to award the contract. Our records there are in much danger. There is a small vault in the basement, which, however, is not well built and which would not stand in the event of a destructive fire. The offices in the Borough of Queens are on the second floor of a general office building, which is not fireproof. People who wish to do business with this office are compelled to walk up a long flight of stairs. Our records there are also in danger. The same may be said of the Richmond office. They have the advantage, however, of being on the ground floor in this latter borough.

I wish to call your attention to the fact that not one of our office buildings is owned by the City. We are in leased offices in each of the five boroughs. In addition to this fact there is not one of them that is fireproof.

DEPARTMENT PROPERTY.

In the report for 1903 I called the attention of the Board to the fact that there was no correct inventory in existence of the property of the Department and no systematic effort has been made to see that such property was kept intact, and that all material was properly accounted for. A request had been made in 1903 for the lease of a general storehouse, which was denied by the Sinking Fund Commission. I most strongly urge upon you the necessity of inaugurating some system of accounting for all the property belonging to the City under the care of this Department. It seems to me that with such a system it would be absolutely necessary to have some central storehouse from which supplies could be distributed to our hospitals and office buildings. The establishment of our drug laboratory is one move in this direction. With the recent assignment of Dr. Benedict as Superintendent of Riverside Hospital, a system is about to be inaugurated at that place which will, so far as practicable, care for the supplies furnished to that institution.

In this connection, I wish to recall the condition of affairs at the time of the horrible disaster to the "General Slocum." The survivors from the boat were treated on North Brother Island, and were furnished with dry clothing and bandages and such other things as they needed, from our stores. The consequent result was that on the night of the 15th

of June our storehouse was practically empty so far as clothing and other materials were concerned, which had been used during the day for those who had fortunately escaped with their lives. On the morning of the 16th, a list had been prepared of such things as were necessary to replenish the stock, and by noon of that date the materials had all been ordered and most of them had been delivered to our dock at the foot of East One Hundred and Thirty-second street. By six o'clock that evening all these materials had been delivered to the island and had been unpacked and stored away in the storehouse. Two of the large department stores from whom considerable of this material was purchased held special delivery wagons at our call during the whole day.

INSPECTOR OF SUPPLIES.

The work of this inspector has been of such a character as to make the importance of this position very evident. In my report for 1902 I called the attention of the Board to the fact that there was no method of determining whether the supplies delivered were according to specification or not. In 1903 this inspector was appointed and since that time we have discovered that a great many things were being delivered which were not in accordance with the specifications. In the early part of this year we had considerable trouble with our various contractors over deliveries of food supplies. In practically every instance where our inspector questioned the quality of the deliveries, his judgment has been substantiated by further investigation of the materials either by the chemist of the Department or by other inspectors. The result has been that contractors are not now so eager to furnish inferior goods. There is no doubt that in the difference in quality of the various supplies delivered, the Department has saved much more than the salary of this inspector. The amount of material purchased for all branches of our service has increased so within the last year that it is now very difficult for one man to make inspections as often as they should be made. I would strongly urge the necessity of appointing another man to assist in this work.

APPROPRIATION ACCOUNTS.

Statement A, appended to this report, shows the appropriations awarded to the Department, so far as they are ascertainable, from the years 1866 to date.

Statement B, attached hereto, shows in detail the appropriations for the year 1904.

The appropriation ledgers continue in the same good condition as reported for 1903. The usual checking with the Finance Department showed almost no errors, and in the few that were found, in most instances the differences were due to mistakes in the Comptroller's books.

Statement C shows the special appropriations made to the Department by issues of revenue bonds and corporate stock. Special mention should be made of the issue of corporate stock for \$500,000 for the purchase of sites and erection of new buildings.

The annual estimate of the expenses of the Department during the year 1905 was forwarded to the Board of Estimate, as usual, about September 1st.

Some changes have been made in the methods of keeping the accounts and in obtaining information as to the amount of our liabilities, which have much improved the work of this branch of the office.

The examiners from the Commissioners of Accounts' office have spent some time in checking up the books of accounts and are still at this work.

PAYROLLS.

The methods employed in caring for the payrolls of the Department continue much the same as they were in 1903. Owing to the number of bond issues during the year for the payment of salaries, the payrolls have been very large. The work, however, has been conducted very satisfactorily and with very few errors.

PURCHASE OF SUPPLIES.

The contract system for the purchase of supplies was continued during this year and many articles formerly purchased in the open market were included in our contract forms. The specifications were carefully

revised and corrected so that articles were much more clearly specified. The methods pursued in the purchase of supplies not under contract continue much the same.

With the beginning of the year a new system of filing our requisitions and bills was adopted which very much improved this work. An envelope somewhat similar to the filing folders in the vertical letter file was adopted into which are put the requisitions when completed, and the bills covering the items on the requisitions in the same envelope, when they have been audited and forwarded to the Finance Department. In this way the complete history of the requisition is filed in the one place.

The number of orders issued during the year were in excess of those for 1903. The number of requisitions were 3,940, which makes the number of orders approximately 19,700, as the number averages about five orders to each requisition.

BOOKS, BLANKS AND STATIONERY.

The annual requisition for books, blanks and stationery, which was forwarded to the "City Record" office in August, was the largest requisition of this character ever submitted by this Department. The number of special requisitions forwarded from time to time has also continued to be very large, showing that the work in all branches of the Department has very greatly increased.

The care of these articles in the various borough offices has been the subject of much consideration during the year. The conditions have very much improved. In the Borough of Manhattan additional shelving has been placed in some of our store rooms to take care of the increased number of blanks.

In making up the annual requisition for 1905, the representatives from the various borough offices were present to go over the sample books and ascertain whether they had placed on their requisitions all the blanks that should be ordered, and to see, in a measure, that there was uniformity in the blanks for all the boroughs. From the fact that there were a great many blanks which these men had not seen it was evident that no one was making it his business to see that blanks adopted

in one borough were adopted in all. I would suggest that instructions be given that whenever a blank is proposed for use in one borough, before it is adopted or printed, a representative from each of the other boroughs be consulted as to the advisability of its use in their respective boroughs. In this way the work of the Department could be kept uniform throughout the Greater City.

CONTRACTS.

The usual contracts for food and other miscellaneous supplies for our hospitals were executed during the year. A number of contracts for new buildings and for alterations and repairs have also been drawn and advertised. One of the most interesting contracts drawn this year has been the one for the building of a new steamboat for the use of the Department. Another very important contract has been the one for the removal of dead animals and offal from the Greater City. Still another interesting contract was the one drawn for the building of a gasoline automobile ambulance for use in the Borough of Queens.

SALE OF LABORATORY PRODUCTS.

The cash receipts from the sale of antitoxin for the year 1904 were \$22,264.98, and for vaccine virus \$6,088.63.

Early in the year a form of contract was drawn up to cover the consignment and sale of our products at the various stations established at drugstores throughout the city. This form of contract gave explicit directions as to how the stock should be kept and under what conditions it should be sold and distributed free. Up to this time no definite instructions had ever been promulgated amongst the various stations. A system was also devised for following up the collections. The collector turns in a report daily of the conditions at each station that he has visited, together with the amount of money he has collected or which is due the Department and which he has been unable to collect. If the latter is the case, a letter is immediately written to this station requesting immediate settlement of the account. The result of this has been that our accounts do not stand open for any great length of time. During the year we have forwarded to the Corporation Counsel's office some-

thing over one hundred delinquent accounts for collection. A great many of these have since been settled. I am, therefore, happy to report that the condition of our books is very greatly improved.

The rule adopted by the Board in June of 1903 discontinuing the sale of our products outside of the limits of the city was rescinded in January of this year. We are now again furnishing our supplies to outside individuals.

PENSION FUND.

Statement D shows the receipts added to the Pension Fund during the year 1904. By this statement it will be seen that the fund was increased to \$171,659.27. This statement also shows the expenditures during the year, which have been \$16,710.40. The balance on hand at this present writing is \$154,948.87. The net increase in the fund over the balance reported on December 31, 1903, is \$20,700.09. The number of pensioners now on the roll is 25. Seven have been added during the year.

CONCLUSION.

One of our efforts during the year has been to adopt standards for such of the supplies as we are purchasing from time to time, and the need for which is constantly recurring. A sample closet has been erected in the office of the Chief Clerk and standards for a great many items are placed therein, which can be compared with deliveries. One of the improvements which we hope to complete during the coming year is the establishment of standards on many more of these items.

Charges were preferred, early in the year, against the management of the office. At my request you obtained the services of the Commissioners of Accounts to examine the records to see whether there were any grounds for the matters charged. The Commissioners of Accounts rendered a report in which they completely exonerated me and justified the work of the office so far as it was covered by the matters dealt with in these charges.

There is much that can be done to improve the work in the minor details and constant changes for the better are being made. The work has increased to such an extent that we have been compelled to have

more help and the office is now very much overcrowded. I should like to urge upon you the necessity for increased office room and for increased storage facilities for the books, blanks and stationery used throughout the Department.

Before closing this report I wish to acknowledge the good work and untiring efforts of those employees of the office who have done so much to help in bettering the conditions in the office and in keeping the work up to its present high standard.

Respectfully submitted,

F. D. BELL,
Chief Clerk.

STATEMENT A.

A statement of the expenditures and appropriations from 1866 to date is here given:

1866 Expenditures (eight months).....	\$178,633 91
1867 Expenditures.....	180,395 13
1868 Expenditures.....	163,834 50
1869 Expenditures.....	182,258 24
1870 Expenditures.....	169,478 27
1871 Expenditures.....	194,976 54
1872 Expenditures (amount not stated).....	.....
1873 Expenditures.....	163,381 23
1874 Expenditures.....	215,885 84
1875 Expenditures.....	242,250 00
1876 to 1888 (amounts not given in the Annual Reports).....	.....
1889 Appropriation.....	413,600 00
1890 Appropriation.....	394,426 50
1891 Appropriation.....	402,615 88
1892 Appropriation.....	452,111 61
1893 Appropriation.....	566,427 56
1894 Appropriation.....	458,645 17
1895 Appropriation.....	495,830 25
1896 Appropriation.....	536,052 52
1897 Appropriation.....	581,358 00
1898 Appropriation (consolidation).....	958,496 50
1899 Appropriation.....	1,110,538 49

1900 Appropriation.....	\$1,055,515 00
1901 Appropriation.....	1,053,990 00
1902 Appropriation.....	984,391 48
1903 Appropriation.....	1,034,391 48
1904 Appropriation.....	1,109,391 48

STATEMENT B.

Appropriations, 1904.

Title.

Salaries, Board of Health and Executive Officers.....	\$42,026 00
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Borough of Manhattan.

Salaries	\$241,819 52
Supplies and Contingencies.....	20,000 00
For Removal of Night Soil, Offal and Dead Animals..	30,000 00
Sanitary Police.....	39,300 00
Disinfection	19,500 00
Hospital Fund (excluding payments to private hos- pitals)	48,333 56
Bacteriological Laboratory.....	60,396 00
Salaries, Medical School Inspection.....	80,000 00
For Abatement of Nuisances.....	500 00

 539,849 08
Borough of The Bronx.

Salaries	\$62,066 64
Supplies and Contingencies.....	2,750 00
Disinfection	1,500 00
Removal of Night Soil, Offal and Dead Animals.....	11,850 00
Hospital Fund (excluding payments to private hos- pitals)	34,000 00
Salaries, Medical School Inspection.....	15,000 00
Sanitary Police.....	4,200 00
For Abatement of Nuisances.....	250 00

 131,616 64
Borough of Brooklyn.

Salaries	\$150,957 76
Supplies and Contingencies.....	9,042 00
Disinfection	9,200 00
Removal of Night Soil, Offal and Dead Animals.....	15,000 00

Hospital Fund (excluding payments to private hospitals)	\$25,500 00	
Salaries, Medical School Inspection.....	40,000 00	
Support of Ambulance Service.....	20,600 00	
Sanitary Police.....	19,700 00	
For Abatement of Nuisances.....	500 00	
		<hr/>
		\$290,499 76

Borough of Queens.

Salaries	\$23,600 00	
Supplies and Contingencies.....	2,000 00	
Disinfection	2,500 00	
Removal of Night Soil, Offal and Dead Animals.....	14,950 00	
Hospital Fund (excluding payments to private hospitals)	1,000 00	
Salaries, Medical School Inspection.....	7,000 00	
Support of Ambulance Service.....	2,400 00	
Sanitary Police.....	4,200 00	
For Abatement of Nuisances.....	250 00	
		<hr/>
		57,900 00

Borough of Brooklyn.

Salaries	\$27,200 00	
Supplies and Contingencies.....	1,500 00	
Disinfection	2,000 00	
Hospital Fund (excluding payments to private hospitals)	1,000 00	
Salaries, Medical School Inspection.....	5,000 00	
Sanitary Police.....	4,200 00	
Removal of Night Soil, Offal and Dead Animals.....	6,500 00	
For Abatement of Nuisances.....	100 00	
		<hr/>
		47,500 00

\$1,109,391 48

STATEMENT C.

Bond Issues and Corporate Stock, 1904.

REVENUE BONDS.

No. 1. Jan. 8	Necessary Expenses, Salaries, Nurses.....	\$47,000 00
No. 2. Jan. 22	Necessary Expenses, Trachoma.....	5,000 00
No. 3. Jan. 22	Necessary Expenses, Disinfection.....	5,000 00
No. 4. Jan. 22	Necessary Expenses, Antitoxin.....	15,000 00

No. 5.	Apr. 29	Destruction of Cattle.....	\$22 50	
	May 27	Destruction of Cattle.....	135 00	
				<hr/> \$157 50
No. 6.	Mar. 18	Necessary Expenses, Trachoma	10,000 00	
No. 7.	Mar. 18	Necessary Expenses, Disinfection.....	20,000 00	
No. 8.	Mar. 31	Necessary Expenses, removal of Night Soil, (Queens)	9,600 00	
No. 9.	Apr. 22	Necessary Expenses, Salaries, Board of Health and Executive Officers.....	9,500 00	
No. 10.	Apr. 22	Necessary Expenses, Salaries, Manhattan.....	30,500 00	
No. 11.	Apr. 22	Necessary Expenses, Salaries, The Bronx.....	36,000 00	
No. 12.	Apr. 22	Necessary Expenses, Salaries, Brooklyn.....	20,000 00	
No. 13.	Apr. 22	Necessary Expenses, Salaries, Queens.....	1,500 00	
No. 14.	Apr. 22	Necessary Expenses, Salaries, Sanitary Police....	17,000 00	
No. 15.	Apr. 22	Necessary Expenses, Manhattan, Supplies and Contingencies	14,878 00	
No. 16.	Apr. 22	Necessary Expenses, Manhattan, Hospital Fund..	16,000 00	
No. 17.	Apr. 22	Necessary Expenses, Manhattan, Tuberculosis Dispensary	6,000 00	
No. 18.	Apr. 22	Necessary Expenses, The Bronx, Hospital Fund..	40,000 00	
No. 19.	Apr. 22	Necessary Expenses, Brooklyn, Supplies and Con- tingencies	1,000 00	
No. 20.	Apr. 22	Necessary Expenses, Brooklyn, Hospital Fund...	21,500 00	
No. 21.	Apr. 22	Necessary Expenses, Queens, Support of Ambu- lance	1,800 00	
No. 22.	June 10	Necessary Expenses, Summer Corps.....	25,000 00	
No. 23.	July 15	Necessary Expenses, Disinfection.....	30,000 00	
No. 24.	July 15	Necessary Expenses, Trachoma.....	10,000 00	
No. 25.	July 15	Necessary Expenses, Tuberculosis Dispensary....	10,000 00	
No. 26.	July 15	Necessary Expenses, Salaries, Queens.....	2,500 00	
No. 27.	July 15	Necessary Expenses, Queens, Supplies and Con- tingencies	2,500 00	
No. 28.	July 15	Necessary Expenses, Medical Commission.....	10,000 00	
No. 29.	Nov. 18	Necessary Expenses, Antitoxin.....	12,000 00	
No. 30.	Dec. 21	Destruction of Cattle.....	22 50	
		Total Revenue Bonds.....	\$429,458 00	

CORPORATE STOCK.

Aug. 2	New Steamboat.....	\$67,000 00
May 20	Department of Health Building Fund.....	500,000 00
	Total.....	<u>\$996,458 00</u>

STATEMENT D.

Pension Fund, 1904.

Balance in Bank, January 1, 1904, as per annual report of December 31, 1903.....	\$134,248 78
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Receipts.

Attorney's costs.....	\$303 50	
Fees for searches and transcripts of the records.....	18,250 30	
Fines and penalties for violation of Sanitary Code.....	13,223 00	
Interest on money in bank.....	5,633 69	
	<u>37,410 49</u>	
		\$171,659 27

Disbursements.

Paid to pensioners.....	\$16,590 00	
Refunds to Clerks of Courts for money erroneously transmitted to this Department.....	120 00	
Returned to Knickerbocker Trust Company.....	40	
	<u>16,710 40</u>	
Balance in bank.....		<u>\$154,948 87</u>

DECEMBER 31, 1904.

FREDERIC D. BELL,

*Chief Clerk, Department of Health,**New York City:*

SIR—I respectfully present the following report of work performed pursuant to your orders and under my personal supervision and direction in the Borough of Manhattan, during the year ending December 31, 1904:

OFFICIAL REPORTS, COMMUNICATIONS AND APPLICATIONS.

All reports, communications and applications are received in the office of the Assistant Chief Clerk and presented to the Board of Health through the Secretary for consideration and final action. They are numbered and filed numerically and are indexed alphabetically under the subject matter by means of the card system. The minutes of the Board and all applications for permits are indexed and filed in the same manner.

The following is a classified summary of the reports, communications and applications considered by the Board of Health during the years 1898 to 1904, inclusive:

	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Special reports and communications presented to the Board for action..... }	379	264	227	274	513	530	418
Premises declared a public nuisance..... }	3	4	7	12	135	180	45
Premises ordered vacated..... }	204	294	340	186	119	80	156
Premises overcrowded..... }	196	250	120	145	67	227	119
Miscellaneous permits granted by the Board..... }	830	1,464	947	798	949	1,517	1,829
Lodging-house permits granted..... }	130	130	130	130	132	135	136
Cow permits granted..... }	235	177	144	20	105	237	192
Mercantile permits granted..... }	40	31	14	6	36	14	34
Application for permits denied by the Board..... }	243	231	168	236	852	2,075	1,596
Registration certificates issued to Master Plumbers..... }	811	887	968	1,324	878	761	658

WRITTEN ACKNOWLEDGMENT OF COMPLAINTS RECEIVED.

All letters addressed to the Department of Health are carefully scrutinized and those in which complaints are made relative to matters within the jurisdiction of this Department and giving the names and addresses of the author are promptly acknowledged. Those requiring the attention of other city departments are acknowledged and immediately forwarded for such action as may be necessary.

The following is a comparative statement of the number of written complaints received and answered during the year 1903 and 1904:

1903 (From August 28 to December 31).....	1,288
1904	4,288

ORDERS ISSUED BY THE BOARD OF HEALTH.

During the twelve months ending December 31, 1904, the number of orders issued by the Board of Health was 17,750.

These orders call the attention of the owners, lessees and agents to violations of the Sanitary Code in each case and require the necessary alterations, repairs, cleaning and improvements of the premises named within three days from the receipt of the order. If upon reinspection it is found that the requirements of the order have not been complied with, a suit for penalty is commenced against the delinquents under sections 1172 and 1222, chapter 466 of the Laws of 1901.

The following is a classified summary of the orders issued by the Board of Health in the Borough of Manhattan during the years 1898 to 1904, inclusive:

	Orders.	Negatives	References.
1898	30,008	9,400	1,427
1899	46,879	10,504	1,600
1900	41,563	9,792	1,868
1901	36,183	9,153	1,183
1902	20,779	8,157	637
1903	14,022	6,397	1,578
1904	17,750	6,080	1,583

FEES FOR SEARCHES FOR ORDERS AGAINST PREMISES.

At a meeting of the Board of Health, held February 17, 1904, the following preamble and resolution were adopted:

Whereas, the applications for searches of the records of Orders on file in this Department issued by the Board of Health against premises in the City of New York from lawyers, mortgage trust companies and others having to do with transfers of real estate, have increased to such an extent as to make necessary the employment of additional help, be it

Resolved, That on and after March 1, 1904, the Board of Health do and it does hereby prescribe a uniform fee of fifty cents each for all searches of orders issued by the Board of Health against premises located in the City of New York.

The following is a statement of the fees received for searches for orders against premises in the Borough of Manhattan from March 1, 1904, to December 31, 1904, inclusive, and deposited to the credit of the Health Department Pension Fund:

1904 (From March 1).....	\$769 10
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SEARCHES AND TRANSCRIPTS OF BIRTHS, MARRIAGES AND DEATHS.

Certified copies of the records of Vital Statistics as may be found to be on file in the Bureau of Records are furnished to applicants authorized to receive same, namely, interested parties, next of kin, legal representatives, etc., upon payment of the fee in such cases prescribed by the Board of Health. Written orders are signed by the Assistant Chief Clerk in the various boroughs and issued to the Assistant Registrar of Records, authorizing the search and issuance of a transcript of the record, which, in accordance with the regulations of the Board, is authenticated by affixing the seal of the Department of Health, and attested by the signature of the Assistant Chief Clerk of the borough. When search is made and the record is not found to be on file, an official certificate is issued to that effect.

The following is a summary of the fees received for searches and transcripts of the records of vital statistics in the Borough of Manhattan during the years 1898 to 1904, inclusive, and deposited to the account of the "Health Department Pension Fund":

1898	\$9,755 80
1899	9,745 90
1900	11,958 70
1901	8,395 50
1902	8,580 60
1903	9,591 70
1904	11,442 70
<hr/>	
Total.....	\$69,470 90
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Respectfully submitted,

JAMES MCC. MILLER,

Assistant Chief Clerk, Borough of Manhattan.

DEPARTMENT OF HEALTH, CITY OF NEW YORK,
 NOS. 38 TO 40 CLINTON STREET, BOROUGH OF BROOKLYN, }
 NEW YORK, December 31, 1904. }

Mr. FREDERIC D. BELL,

Chief Clerk, Department of Health:

SIR—I beg leave to submit the following report of the work performed in the office of the Assistant Chief Clerk, Borough of Brooklyn, during the year 1904.

Owing to the increased work in the Department, it was found necessary to use more economically the inadequate space at the disposal of the Brooklyn office. With this object in view the chemical laboratory on the third floor was dismantled and moved to Manhattan, and the vacated rooms used by the Division of Contagious Diseases. This change made it possible to handle more expeditiously the increased demand for employment and birth certificates, and to dispense with the rental of the rooms of the Historical Society Building as a temporary vaccination station.

Repairs to and remodeling of the building which have been delayed awaiting an appropriation will still further facilitate the work of the Department, and the contract should be awarded without further delay.

Upon the removal of the laboratory to the main office in Manhattan the vacated rooms were remodeled for the use of the Division of Contagious Diseases, which took place in May. This change made it possible to move from the basement to the first floor the office for the issuing of employment certificates. In its new quarters the division is much more conveniently located for the public.

In anticipation of the opening of the schools and the attendant rush for certificates and vaccinations, arrangements were made to handle the crowd from the main building and to dispense with the temporary station in the Historical Building at the corner of Clinton and Pierrepont streets, hired for the months of September and October at a rental of One Hundred (\$100) Dollars per month. To do this, the room where they issue employment certificates was temporarily used to relieve the crush in the basement. Nine medical inspectors doing vaccinations

were kept at work, and the crowd was handled easily and rapidly. Dr. Maxwell, City Superintendent of Public Schools, issued an order that all children, to enter public schools, must produce a birth certificate from the Department of Health. This added to the work of the Department, and although there were issued from two to three hundred certificates daily, the work of the office was not interfered with materially.

Plans were drawn in September for the repairs and remodeling of the building to still further economize space and make the building more modern. Bids were advertised for, and the awarding of the contract has been delayed owing to lack of appropriation.

During the year 1903 the total number of orders issued on the Assistant Registrar of Records for searches of marriages, births and deaths were 7,605, amounting to \$3,957.30. For the year 1904 there were issued 9,869 orders, which amounted to \$4,999.50.

At a meeting of the Board of Health in February of this year, a resolution was passed charging a fee of fifty cents for searches made against any piece of property to find whether a complaint or violation existed. Since that resolution we have issued 102 orders for searches upon the Division of Inspections. This amounted to \$51, making a grand total for searches of \$5,050.

The number of orders issued for the abatement of nuisances was 6,299.

The following table will show the amount of vaccine virus, anti-toxine, mallein and tetanus serum which has been sold and given away free to inspectors, physicians and institutions during the year:

	Vaccine Virus.	Antitoxine	Mallein.	Tetanus.
Cash Sales.....	\$97 57	\$117 85	\$70 35	\$3 80
Free	2,672 10	9,049 75	4 55	201 00
Stock on Hand.....	210 80	546 50	5 25	27 00
Total.....	\$2,980 47	\$9,714 10	\$80 15	\$231 80

The money received from all cash sales of vaccine virus, antitoxine, etc., also for searches of births, marriages, deaths and violations, is forwarded to the Manhattan office weekly. The following shows the exact amount forwarded from January 1, 1904, to November 30, 1904:

Antitoxine	\$117 85
Vaccine Virus.....	97 57
Mallein	70 35
Tetanus	3 80
Searches for Transcripts.....	4,999 00
Searches for Violations.....	51 00
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Total.....	\$5,339 57
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Respectfully submitted,

ALFRED T. METCALFE,

Assistant Chief Clerk, Borough of Brooklyn.

DEPARTMENT OF HEALTH, CITY OF NEW YORK.
SOUTHWEST CORNER ST. PAUL'S PLACE AND THIRD AVENUE, {
BOROUGH OF THE BRONX, }
NEW YORK, December 31, 1904. }

FREDERIC D. BELL, Esq.,

Chief Clerk, Department of Health:

SIR—I respectfully submit the following report on the work of the office of the Assistant Chief Clerk in this borough for the year ending December 31, 1904:

Orders Issued by the Board of Health.

Board orders issued.....	2,106
Negative reports filed.....	1,827
References to other City Departments.....	228
Searches made and certificates issued.....	342
Communications received and answered.....	408
Amount of fees received.....	\$171 00

Searches and Transcripts of Births, Marriages and Deaths.

Applications for searches.....	2,012
Transcripts signed and authenticated, Births, 27, Marriages, 49, Deaths, 2,262, total.....	2,338
Not found certificates issued.....	36
Communications received and answered.....	78
Amount of fees received.....	\$1,000 20

Written Acknowledgment of Complaints Received.

Number of written complaints received and answered.....	412
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Respectfully submitted,

AMBROSE LEE, JR.,
Assistant Chief Clerk, Borough of The Bronx.

DEPARTMENT OF HEALTH, CITY OF NEW YORK,
374 FULTON STREET, JAMAICA,
BOROUGH OF QUEENS,
NEW YORK, December 31, 1904.

FREDERIC D. BELL, Esq.,

Chief Clerk, Department of Health:

SIR—I have to report as follows as to the work done in the office of the Assistant Chief Clerk in the Department of Health, Borough of Queens, during the year 1904:

Complaints.

Citizen's complaints received.....	1,540
Citizen's complaints acknowledged.....	1,021
Citizen's complaints, anonymous or personally made.....	519

Orders and References.

Board's Orders issued.....	1,150
Negative Reports filed.....	468
Communications in relation to Orders received and acknowledged..	160
References to other Departments.....	294

Searches for Violations.

Searches made and Certificates issued.....
Communications received and answered.....	.....
Fees received.....	.....

Searches and Transcripts.

Applications for Searches.....	667
Transcripts signed and authenticated.....	911
Not Found Certificates issued.....	41
Communications received and answered.....	126
Fees received.....	\$367 00

The clerical force of the Assistant Chief Clerk's office during the year consisted of one clerk, one junior clerk and one stenographer and typewriter.

Respectfully submitted,

GEORGE R. CROWLY,
Assistant Chief Clerk, Borough of Queens.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
54-56 WATER STREET, STAPLETON, }
BOROUGH OF RICHMOND, }
NEW YORK, December 31, 1904. }

FREDERIC D. BELL, Esq.,
Chief Clerk, Department of Health:

SIR—I herewith submit my report of the work performed in my office for the year 1904.

During the present year there has been a much greater demand upon this office for free antitoxin than in any period since consolidation. The requests for free antitoxin have been received principally from the S. R. Smith Infirmary, Mt. Loretto, Nursery & Child's Hospital, Seaside Hospital, and physicians in general.

The increased demand has not been caused by an increase in the percentage of disease reported, but can be accounted for only because

the physicians are now favoring the use of the Department of Health's antitoxin against that of private producers, and because they receive it free.

During the year I have given away phials amounting to five hundred and fourteen dollars and fifty cents (\$514.50).

The number of orders issued for the abatement of nuisances were 1,019, and the number of written references to other City Departments was 81.

The clerical work during the present year has increased considerably, for the reason that the work of the Department in this borough has steadily grown, and there were some busy periods during the year in the sanitary and contagious disease divisions. The work, however, has gone on very satisfactorily, and I have nothing but the highest praise for the efficiency of the clerical force under my care, for the faithful manner in which they have discharged their duties.

The request for searches and transcripts is also steadily on the gain, this branch of the work having increased proportionately more than any other. This increase can be accounted for principally by reason of the new school law which went into effect last year, requiring a certificate of birth of every child applying for admission to the public schools, and also the new Labor Law, which requires certificates not heretofore necessary. The number of transcripts of the records of births, marriages and deaths issued during the year was as follows: Births, 23; marriages, 21; deaths, 310. Fees received for same amounted to \$160.30.

The general work and correspondence of the Department is going on in a very satisfactory condition and has also increased correspondingly.

In conclusion, I have the honor to say that the work in my office during the past year has, I believe, been satisfactory, and I know of no recommendations or suggestions that I could offer which would tend to further the effectiveness of my office.

Thanking you for your kindness and valuable assistance during the past year, and trusting that you may overlook any omissions in this my

report, which, as you know, has been prepared under difficulties, while away from my office at St. Louis, Mo., where I have been detailed for some time in charge of the Departmental Exhibit at the World's Fair, where it is almost impossible for me to concentrate my thoughts upon the various subjects, I am,

Yours very truly,

CHAS. E. HOYER,

Asst. Chief Clerk, Borough of Richmond.

OFFICE OF THE ASSISTANT CORPORATION COUNSEL.

To the Honorable Board of Health:

SIRS—I have the honor to submit the following report of Assistant Corporation Counsel assigned to Bureau of Penalties for the year ending December 31, 1904:

Borough of Manhattan.

Orders received from the Board of Health for issuance of notice of intention to commence action.....	6,136
Notices of intention to commence action issued and served.....	6,136
Orders pending December 31, 1904.....	187
Orders complied with after issuance and service of notice.....	5,587
Orders complied with after suit.....	782
Orders received for suit.....	700
Civil actions commenced to recover penalties on orders and for violation of Sanitary Code.....	810
Other Civil actions commenced.....	28
Civil actions pending last year.....	210
Judgments recovered in civil actions in favor of the Department of Health	50
Judgments vacated and set aside by order of the Court.....	20
Civil actions discontinued upon request of the Board of Health.....	1,005
Civil actions now pending (December 31, 1904).....	13
Judgments docketed.....	57
Executions issued.....	12
Judgments collected.....	2
Amount of costs, penalties, and judgments collected in civil actions and paid to Secretary of Board.....	\$260 00
Amount of claims collected before and after suit for antitoxin and virus furnished by the Department to various parties, and paid to the Secretary of Board.....	\$925 00
Criminal actions pending last year in Court of Special Sessions.....	17
Criminal actions commenced.....	2,809
Defendants held for trial in Court of Special Sessions.....	562
Defendants discharged by Magistrates.....	402
Defendants convicted by Magistrates.....	1,845
Judgments of conviction in Court of Special Sessions.....	516
Complaints dismissed in Court of Special Sessions.....	8
Judgments of acquittal in Court of Special Sessions.....	19

Criminal actions now pending in Court of Special Sessions (December 31, 1904).....	36
Fines imposed by Court of Special Sessions.....	\$7,650 00
Fines imposed by Magistrates.....	\$3,950 00
Appeals pending last year.....	3
Appeals by the Department of Health.....	..
Appeal by defendants.....	3
Appeals decided in favor of defendant.....	1
Appeals withdrawn by the Department.....	1
Appeals withdrawn by the defendant.....	2
Appeals now pending.....	2

Borough of Brooklyn.

Orders received from the Board of Health for issuance of notice of intention to commence action.....	2,547
Notices of intention to commence action issued and served.....	2,547
Orders complied with after issuance and service of notice.....	2,014
Civil actions pending last year.....	2
Judgments recovered in civil actions in favor of the Department of Health	2
Judgments collected.....	2
Costs, penalties, and judgments collected in civil actions and paid to Secretary of Board.....	\$180 80
Criminal actions pending last year in Court of Special Sessions.....	33
Criminal actions commenced.....	792
Defendants held for trial in Court of Special Sessions.....	687
Defendants discharged by Magistrates.....	19
Defendants convicted by Magistrates.....	107
Judgments of conviction in Court of Special Sessions.....	488
Complaints dismissed in Court of Special Sessions.....	60
Judgments of acquittal in Court of Special Sessions.....	62
Criminal actions now pending in Court of Special Sessions.....	108
Fines imposed by Court of Special Sessions.....	\$4,070 00
Appeals pending last year.....	1
Appeals decided in favor of Department of Health.....	1
Appeals now pending.....	..

Borough of The Bronx.

Orders received from the Board of Health for issuance of notice of intention to commence action.....	884
Notices of intention to commence action issued and served.....	884
Orders complied with after issuance and service of notice.....	620
Orders complied with after suit.....	268
Orders now pending (December 31, 1904).....	110
Orders received for suit.....	252
Civil actions commenced to recover penalties on orders and for violation of Sanitary Code.....	254
Civil actions pending last year.....	102
Judgments recovered in civil actions in favor of the Department of Health	15
Judgments vacated and set aside by order of the Court.....	5
Civil actions discontinued upon request of the Board of Health.....	334
Civil actions now pending (December 31, 1904).....	12
Judgments docketed.....	3
Executions issued.....	2
Cost, penalties, and judgments collected in civil actions and paid to Secretary of Board.....	\$48 00
Criminal actions pending last year in Court of Special Sessions.....	2
Criminal actions commenced.....	59
Defendants held for trial in Court of Special Sessions.....	14
Defendants discharged by Magistrates.....	15
Defendants convicted by Magistrates.....	33
Judgments of conviction in Court of Special Sessions.....	13
Judgments of acquittal in Court of Special Sessions.....	..
Criminal actions now pending in Court of Special Sessions.....	2
Fines imposed by Court of Special Sessions.....	\$205 00
Fines imposed by Magistrates.....	\$47 00

Borough of Queens.

Orders received from the Board of Health for issuance of notice of intention to commence action.....	310
Notices of intention to commence action issued and served.....	310
Orders complied with after issuance and service of notice.....	141
Orders now pending.....	28
Civil actions pending last year.....	2
Civil actions discontinued upon request of the Board of Health.....	2
Criminal actions pending last year.....	..

Criminal actions commenced.....	92
Defendants held for trial in Court of Special Sessions.....	35
Defendants discharged by Magistrates.....	58
Judgments of conviction in Court of Special Sessions.....	33
Judgments of acquittal in Court of Special Sessions.....	2
Complaints dismissed in Court of Special Sessions.....	2
Criminal actions now pending in Court of Special Sessions.....	2
Fines imposed by Court of Special Sessions.....	\$625 00

Borough of Richmond.

Orders received from the Board of Health for issuance of notice of intention to commence action.....	459
Notices of intention to commence action issued and served.....	459
Orders complied with after issuance and service of notice.....	264
Orders complied with after suit.....	141
Orders now pending (upon 48 of which judgments have been recovered, and upon 110 of which actions were commenced. Of these actions 78 were discontinued upon request of the Board, and 32 are still pending, leaving 80 orders actually in hands of counsel on December 31, 1904).....	158
Orders received for suit.....	202
Civil actions commenced to recover penalties on orders and for violation of Sanitary Code.....	246
Civil actions pending last year.....	86
Judgments recovered in civil actions in favor of the Department of Health	73
Judgments vacated and set aside by order of the Court.....	19
Civil actions discontinued upon request of the Board of Health.....	246
Civil actions now pending.....	32
Judgments docketed.....	54
Costs, penalties and judgments collected in civil actions and paid to Secretary of Board.....	\$48 00
Criminal actions pending last year in Court of Special Sessions.....	2
Criminal actions commenced.....	30
Defendants held for trial in Court of Special Sessions.....	24
Defendants discharged by Magistrates.....	8
Defendants convicted by Magistrates.....	2
Judgments of conviction in Court of Special Sessions.....	16
Complaints dismissed in Court of Special Sessions.....	1
Judgments of acquittal in Court of Special Sessions.....	4

Criminal actions now pending in Court of Special Sessions.....	3
Fines imposed by Court of Special Sessions.....	\$70 00
Fines imposed by Magistrates.....	\$2 00

Respectfully submitted,

HERMAN STIEFEL,
Assistant Corporation Counsel.

SANITARY BUREAU.

DEPARTMENT OF HEALTH,
SIXTH AVENUE AND FIFTY-FIFTH STREET, }
NEW YORK, December 31, 1904. }

To the Honorable Board of Health:

SIRS—I have the honor to submit the report of the work performed in the Sanitary Bureau during the year 1904.

The Sanitary Bureau of the Department of Health is under the charge of the Sanitary Superintendent, assisted by five Assistant Sanitary Superintendents, one in charge of each borough:

Walter Bensel, M.D., in charge of the Borough of Manhattan.

Patrick J. Murray, M.D., in charge of the Borough of Brooklyn
from January 1 to August 11, 1904.*

Gerald Sheil, M.D., in charge of the Borough of The Bronx.

John P. Moore, M.D., in charge of the Borough of Queens.

John T. Sprague, M.D., in charge of the Borough of Richmond.

The following is a summary of the operations of the Sanitary Bureau, which is charged with the duty of inspecting and reporting, in proper form, all nuisances or causes of danger to the public health; with the execution of the orders of the Board; with the care of contagious diseases; with the inspection of foods and offensive trades; with the inspection of mercantile establishments and issuance of employment certificates; with the pathological, bacteriological and chemical research and investigations, and with the inspection of scholars attending the public, parochial and private schools.

The number of inspections and reinspections made was 1,595,244, classified as follows:

By the Division of Inspection.....	975,355
By the Division of Contagious Diseases.....	528,822
By the Division of Bacteriology.....	50,898
By the Division of Chemistry.....	40,169
Total.....	1,595,244

*Under charge of Sanitary Superintendent from August 11, 1904.

The number of complaints forwarded for Board's orders was 31,729, classified as follows:

By the Division of Inspection.....	30,575
By the Division of Contagious Diseases.....	371
By the Division of Bacteriology.....	783
Total.....	31,729

The number of complaints received from citizens was 30,851, all of which were referred to the Sanitary Inspectors and the Sanitary Police for investigation and report.

The Sanitary Superintendent during the same period, under instructions and authority of the Board, granted 3,945 permits to discharge cargoes, under proper vouchers from the Health Officer of the Port, and 13,308 miscellaneous permits under the Sanitary Code.

The following tabulated statement and summary shows the date, location of premises, cause of action and the result of vacation of premises by the Board of Health, in compliance with the requirements of sections 1176 and 1299 of chapter 466, Laws of 1901:

Borough of Manhattan.

No.	Date.	Location.	Cause.	Result.
1	Jan. 20	No. 280 Broome street.....	Defective plumbing and defective drainage.....	Complied Apr. 8.
2	Feb. 3	No. 81 Dey street.....	Defective plumbing and defective drainage.....	" Mar. 23.
3	" 10	No. 452 West Thirty-eighth street.....	Defective plumbing and defective drainage.....	" " 12.
4	" 17	No. 607 West Fifty-fifth street.....	Defective plumbing and defective drainage.....	" " 12.
5	" 17	No. 609 West Fifty-fifth street.....	Public nuisance.....	" July 15.
6	" 17	No. 611 West Fifty-fifth street.....	"	" " 15.
7	" 17	No. 613 West Fifty-fifth street.....	"	" " 15.
8	" 17	No. 615 West Fifty-fifth street.....	"	" " 15.
9	" 24	No. 322 East Sixteenth street.....	Defective plumbing and defective drainage.....	" Mar. 18.
10	Mar. 2	No. 400 Sixth avenue.....	Defective plumbing and defective drainage.....	" July 11.
11	" 9	No. 138 Bowery.....	Public nuisance.....	Work progressing.
12	" 9	No. 160 East One Hundred and Nineteenth street.....	Defective plumbing and defective drainage.....	Complied Apr. 19.
13	" 9	No. 362 West Fifty-fifth street.....	Defective plumbing and defective drainage.....	" " 18.
14	" 16	No. 164 South street.....	Defective plumbing and defective drainage.....	" Aug. 22.
15	" 16	No. 128 Essex street.....	Defective plumbing and defective drainage.....	" Mar. 24.

No.	Date.	Location.	Cause.	Result.
16	Mar. 23	No. 86 Henry street.....	Public nuisance	Complied Apr. 8.
17	" 23	No. 3 Eldridge street.....	"	" " 14.
18	" 30	No. 316 Seventh avenue.....	Defective plumbing and defective } drainage.....	" Sept. 26.
19	" 30	No. 318 Seventh avenue.....	Defective plumbing and defective } drainage.....	" " 26.
20	Apr. 6	No. 339 East One Hundred } and Fifteenth street.....	Defective plumbing	" Apr. 27.
21	" 6	No. 101 Avenue " B".....	Public nuisance.....	" May 31.
22	" 20	No. 360 West Fiftieth street..	Defective drainage.....	" " 24.
23	May 4	No. 143 Allen street.....	Defective plumbing.....	" " 17.
24	" 4	No. 324 East One Hundred } and Eighth street.....	Public nuisance	" Sept. 22.
25	" 4	No. 327 East One Hundred } and Twenty-second street }	"	" June 24.
26	" 4	No. 28 Bradhurst avenue.....	Defective plumbing	" Nov. 21.
27	" 4	No. 204 West One Hundred } and Eighth street.....	Defective drainage.....	" Oct. 28.
28	" 4	No. 206 West One Hundred } and Eighth street.....	"	" " 28.
29	" 4	No. 208 West One Hundred } and Eighth street.....	"	" " 28.
30	" 4	No. 210 West One Hundred } and Eighth street.....	"	" " 28.
31	" 4	No. 96 Cherry street.....	Public nuisance.....	" June 27.
32	" 11	No. 210 West One Hundred } and Twenty-fourth street }	Defective plumbing	" " 24.
33	" 11	No. 190 Mulberry street.....	Defective plumbing.....	" Sept. 23.
34	" 11	No. 76 Jefferson street.....	Defective drainage.....	" June 6.
35	" 18	No. 357 Pearl street.....	Nuisance	" Nov. 19.
36	" 18	No. 177 Monroe street.....	Public nuisance.....	" May 26.
37	" 18	No. 179 Monroe street.....	"	" " 26.
38	" 18	No. 181 Monroe street.....	"	" " 26.
39	" 18	No. 447 Pleasant avenue.....	"	" Sept. 14.
40	Jun. 22	No. 24 West Ninth street....	Defective plumbing.....	" Oct. 18.
41	" 22	No. 559 West Fifty-seventh } street.....	"	" Nov. 22.
42	" 22	No. 217 West Thirty-eighth } street.....	"	" July 16.
43	" 22	No. 257 Bleecker street.....	"	" Aug. 31.
44	" 29	No. 529 Lexington avenue....	Defective drainage.....	" " 22.
45	July 13	No. 613 West Forty-ninth } street.....	Public nuisance.....	" Sept. 26.
46	" 13	No. 244 East Sixty-fifth } street.....	Defective plumbing.....	" July 25.
47	" 20	No. 135 Park row.....	Defective drainage.....	" Aug. 17.
48	" 20	No. 137 Park row.....	"	" " 17.
49	Aug. 3	No. 1499 First avenue.....	Public nuisance.....	" Sept. 17.
50	" 3	No. 654 West Thirty-fourth } street.....	Defective drainage.....	" Aug. 17.
51	" 3	No. 553 West Forty-ninth } street.....	Public nuisance.....	" Oct. 14.
52	" 3	No. 555 West Forty-ninth } street.....	"	" " 14.
53	" 11	No. 121 East One Hundred } and Fourth street.....	Defective plumbing and defective } drainage.....	" Aug. 26.

No.	Date.	Location.	Cause.	Result.
54	Aug. 11	No. 1101 Third avenue.....	Defective drainage.....	Complied Aug. 16.
55	" 11	No. 236 East One Hundred } and Twelfth street..... }	Defective plumbing.....	" Sept. 20.
56	" 11	No. 578 Greenwich street.....	Public nuisance.....	" Dec. 15.
57	" 11	No. 580 Greenwich street.....	"	" " 15.
58	" 11	No. 582 Greenwich street.....	"	" " 15.
59	" 25	No. 439 Eleventh avenue.....	"	" Nov. 12.
60	" 25	No. 441 Eleventh avenue.....	"	" " 12.
61	" 25	No. 443 Eleventh avenue.....	"	" " 12.
62	" 25	No. 445 Eleventh avenue.....	"	" " 12.
63	" 25	No. 447 Eleventh avenue.....	"	" " 12.
64	" 25	No. 449 Eleventh avenue.....	"	" " 12.
65	" 25	No. 451 Eleventh avenue.....	"	" " 12.
66	Sept. 7	No. 366 Third avenue..... }	Defective plumbing and defective } drainage..... }	" Oct. 28.
67	" 7	No. 10 Liberty place.....	Public nuisance.....	" " 11.
68	" 7	No. 406 East Fifty-ninth street	"	" " 10.
69	" 7	No. 408 East Fifty-ninth street	"	" " 10.
70	" 28	No. 47 Pike street.....	"	" " 21.
71	" 28	No. 49 Pike street.....	"	" " 21.
72	" 28	No. 51 Pike street.....	"	" " 21.
73	" 28	No. 385 Water street.....	Defective plumbing.....	" " 17.
74	" 28	No. 1014 Park avenue.....	"	" Nov. 23.
75	" 28	No. 25 East One Hundred } and Twenty-fifth street.. }	Defective plumbing.....	" " 22.
76	Oct. 19	No. 543 West Twenty-first } street	Public nuisance.....	" " 18.
77	" 19	No. 545 West Twenty-first } street	"	" " 18.
78	" 26	No. 105 East One Hundred } and Third street..... }	Defective plumbing.....	" " 21.
79	" 26	No. 201 West Thirtieth street.	"	" Dec. 30.
80	" 26	No. 450 West One Hundred } and Forty-fifth street..... }	"	" Nov. 18.
81	Nov. 2	No. 340 East Sixty-ninth } street	"	Work progressing.
82	" 2	No. 152 East Forty-seventh } street..... }	"	Complied Nov. 22.
83	" 2	No. 437 Eleventh avenue.....	"	" " 9.
84	" 21	No. 60 Pike street.....	"	Work progressing.
85	" 21	No. 500 West Thirtieth street.	"	"
86	Dec. 7	No. 350 West Fifty-fifth street	"	"
87	" 7	No. 144 West Forty-fourth } street	"	Vacated Dec.23; work progressing.
88	" 7	No. 319 East Twelfth street..	"	Work progressing.
89	" 14	No. 231 East Seventy-sev- } enth street..... }	"	"
90	" 14	No. 437 West Twenty-fourth } street	"	"

Borough of Brooklyn.

No.	Date.	Location.	Cause.	Result.
1	Feb. 17	County Jail, north side Raymond street corner Wiloughby street.....	Public nuisance.....	Work progressing.
2	Apr. 20	Lott avenue and Christopher street.....	"	Complied May 31.
3	June 8	No. 198 Powell street.....	Defective drainage.....	" July 25.
4	" 8	Thirty-eighth street, between Eighth and Ninth avenues	Public nuisance.....	Work progressing.
5	" 22	No. 192 Powell street.....	Defective drainage.....	Complied July 18.
6	" 22	No. 194 Powell street.....	"	" " 18.
7	" 22	No. 149 Washington street....	"	" " 5.
8	July 13	No. 651 Sixth avenue.....	Defective plumbing.....	{ Vacated Dec.29; work progressing.
9	" 13	No. 194 Palmetto street.....	Public nuisance.....	
10	Aug. 11	No. 343 Union street.....	"	"
11	" 11	No. 242 Harrison street (front house).....	Defective drainage.....	Complied Oct. 18.
12	" 11	No. 777 Flatbush avenue.....	"	" Sept.29.
13	" 11	No. 681 St. Mark's avenue....	"	{ Vacated Dec.27; work progressing.
14	" 11	No. 213 Myrtle avenue.....	Defective plumbing.....	
15	" 11	No. 826 Fiftieth street.....	Defective drainage.....	{ Vacant; work progressing.
16	" 11	No. 828 Fiftieth street.....	"	
17	" 25	No. 58 Hopkinson street.....	Public nuisance.....	Complied Nov. 14.
18	" 25	No. 24 Fifteenth street.....	Defective plumbing	" Nov. 1.
19	" 25	No. 943 Herkimer street.....	"	" Dec. 22.
20	" 25	No. 200 Park avenue.....	{ Defective plumbing and defective drainage.	{ " Oct. 6.
21	" 25	No. 26 Fifteenth street.....		
22	Sept. 7	No. 5 Johnson avenue	Defective drainage.....	Work progressing.
23	" 7	No. 7 Johnson avenue	"	"
24	" 7	No. 11 Johnson avenue	"	"
25	" 7	No. 13 Johnson avenue	"	"
26	" 7	No. 941 Franklin avenue.....	"	{ Vacated Dec.27; work progressing.
27	" 7	No. 1776 Atlantic avenue	"	
28	" 7	No. 5 West Twelfth street....	"	{ Vacated Dec.28; work progressing.
29	" 7	East side of West Twelfth street, near Surf avenue..	"	
30	" 7	No. 8641 Bay Thirty-fourth street.....	"	{ Vacated Dec.29; work progressing.
31	" 7	No. 417 Eighty-eighth street..	"	
32	" 7	No. 419 Eighty-eighth street..	"	{ Vacated Dec.16; work progressing.
33	" 28	No. 38 Talman street.....	{ Defective plumbing and defective drainage.	
34	" 28	No. 155 Newell street.....	Defective drainage.....	" Oct. 24.
35	" 28	No. 24 Forty-first street.....	"	" Nov. 9.
36	" 28	No. 32 Forty-first street.....	"	" Dec. 17.

No.	Date.	Location.	Cause.	Result.
37	Sept. 28	No. 728 Gates avenue.....	Defective drainage	Work progressing.
38	" 28	No. 716 Fifty-seventh street...	"	"
39	" 28	No. 208 Myrtle avenue.....	"	Complied Oct. 24.
40	" 28	No. 168 Classon avenue.....	"	" Dec. 22.
41	" 28	No. 82 Skillman street (rear).	"	Work progressing.
42	" 28	No. 84 Skillman street (rear).	"	"
43	" 28	No. 210 Myrtle avenue.....	"	Complied Nov. 19.
44	" 28	No. 76 Kent avenue.....	Defective plumbing.....	Vacated Dec. 15; work progressing.
45	" 28	No. 1016 Herkimer street.....	Defective drainage	Complied Nov. 22.
46	" 28	No. 7 Bancroft place.....	Defective plumbing and defective drainage.....	" " 29.
47	" 28	No. 1742 Pacific street.....	Defective drainage.....	" Oct. 27.
48	Oct. 6	Northwest corner Ocean parkway and West avenue (front building).....	"	" Dec. 14.
49	" 6	Northwest corner Ocean parkway and West avenue (rear building).....	"	Work progressing.
50	" 6	North side of Surf avenue, second house west of Twenty-eighth street.....	"	Vacant; work pro- gressing.
51	" 6	Surf avenue and West Twenty-ninth street.....	"	Complied Dec. 2.
52	" 6	Southwest corner Sheridan's Walk and Broadway.....	"	Vacated Dec. 15; work progressing.
53	" 6	Northwest corner West Third street and Neptune avenue.....	"	Vacated Dec. 24; work progressing.
54	" 6	No. 179 Logan street.....	"	Work progressing.
55	" 6	No. 183 Logan street.....	"	"
56	" 6	No. 179 Sackman street.....	"	Complied Nov. 7.
57	" 6	No. 56 Union street.....	"	" " 15.
58	" 6	No. 222 Bond street.....	"	" Dec. 12.
59	" 6	No. 490½ Smith street.....	"	" Nov. 15.
60	" 26	No. 111 Stagg street.....	"	Rescinded Nov. 30.
61	" 26	No. 12 Ash street.....	"	Vacated Dec. 15; work progressing.
62	" 26	No. 351 Grand street.....	"	Complied Dec. 8.
63	" 26	No. 353 Grand street.....	"	" " 8.
64	" 26	No. 355 Grand street.....	"	" " 8.
65	" 26	No. 114 Skillman avenue.....	"	Work progressing.
66	" 26	No. 116 Skillman avenue.....	"	"
67	Nov. 2	No. 1564 Prospect place.....	Nuisance.....	Vacated Dec. 20; work progressing.
68	" 2	No. 910 Franklin avenue.....	"	Complied Dec. 23.
69	" 2	No. 313 Vanderbilt avenue....	Defective drainage.....	" " 20.
70	" 2	No. 711 Liberty avenue.....	"	" " 27.
71	" 2	No. 30 Amboy street.....	"	Vacated Dec. 21; work progressing.
72	" 2	No. 85 Powell street	"	Vacated Dec. 21; work progressing.
73	" 2	No. 339 Snediker avenue.....	Defective plumbing and defective drainage.....	Work progressing.

No.	Date.	Location.	Cause.	Result.
74	Nov. 2	No. 341 Snediker avenue.....	Defective drainage.....	Work progressing.
75	" 2	No. 343 Snediker avenue....	Defective plumbing and defective drainage.....	"
76	" 2	No. 353 Snediker avenue....	Defective plumbing and defective drainage.....	"
77	" 2	No. 357 Snediker avenue.....	Defective drainage.....	"
78	" 2	No. 359 Snediker avenue....	Defective plumbing and defective drainage.....	Vacated Dec. 19; work progressing.
79	" 2	No. 361 Snediker avenue....	Defective plumbing and defective drainage.....	Work progressing.
80	" 2	No. 363 Snediker avenue....	Defective plumbing and defective drainage.....	"
81	" 21	Northeast corner Sixtieth street and Twelfth avenue (front building).....	Defective drainage.....	"
82	" 21	Northeast corner Sixtieth street and Twelfth avenue (rear building).....	"	"
83	" 21	No. 376 Marion street.....	Defective plumbing	"
84	" 21	No. 68 Sumpter street (front) {	Defective plumbing and defective drainage.....	Complied Dec. 7.
85	" 21	No. 430 Baltic street.....	Defective drainage.....	Work progressing.
86	" 21	No. 2620 Atlantic avenue.....	"	"
87	" 21	No. 327 Sheffield avenue.....	"	"
88	" 21	No. 548 Elton avenue.....	"	"
89	" 21	No. 183 Butler street.....	"	"
90	" 21	No. 227 Forty-ninth street....	"	"
91	" 21	No. 611 Eighteenth street....	"	Complied Dec. 6.
92	" 21	No. 152 Twenty-fourth street..	"	Work progressing.
93	" 21	No. 666 Fifty-eighth street....	"	Vacated Dec. 15; work progressing.
94	" 21	No. 664 Fifty-eighth street....	"	Work progressing.
95	" 21	No. 524 Coney Island avenue..	"	Vacated Dec. 7.
96	" 21	No. 522 Coney Island avenue..	"	Work progressing.
97	Dec. 7	No. 319 Johnson avenue.....	Public nuisance.....	"
98	" 7	No. 321 Johnson avenue.....	"	"
99	" 7	No. 323 Johnson avenue.....	"	"
100	" 7	No. 325 Johnson avenue.....	"	"
101	" 14	No. 486 St. John's place.....	Defective plumbing.....	"
102	" 21	No. 260 Atlantic avenue.....	"	"
103	" 21	No. 834 Dean street (front)...	Public nuisance.....	Vacated Dec. 30.
104	" 21	No. 834 Dean street (rear)....	Defective plumbing.....	" " 30.

Borough of The Bronx.

No.	Date.	Location.	Cause.	Result.
1	Jan. 20	Sheridan avenue, between One Hundred and Sixty-seventh and One Hundred and Sixty-eighth streets..	Public nuisance.....	Complied June 28.
2	Mar. 9	East side Hughes avenue, first house south of One Hundred and Eighty-seventh street.....	Defective plumbing and defective drainage.....	" Dec. 19.
3	" 16	East side Amethyst street, second house north of Morris Park avenue.....	Defective drainage.....	" Apr. 8.
4	July 20	No. 2415 Belmont avenue.....	"	Vacated Dec. 14.
5	" 20	No. 2345 Bathgate avenue ...	"	Complied Nov. 2.
6	" 20	No. 2347 Bathgate avenue ...	"	" " 2.
7	" 20	Southwest corner Maple avenue and First street, Williamsbridge.....	"	Work progressing.
8	Aug. 3	No. 1974 Hughes avenue.....	"	Complied Sept. 13.
9	" 3	No. 1976 Hughes avenue.....	"	" " 13.
10	" 3	No. 1978 Hughes avenue.....	"	" " 13.
11	" 25	North side of Second street, fourth house west of Fourth avenue.....	Defective plumbing	Work progressing.
12	Sept. 7	North side of Gate street, first house west of Southern Boulevard.....	Defective drainage.....	Vacated Oct. 25.
13	Nov. 21	North side of Becker or Two Hundred and Forty-first street, first house west of White Plains road.....	Defective plumbing and defective drainage.....	Work progressing.
14	" 21	Northwest corner Matilda street and Kossuth avenue	Defective drainage.....	"

Borough of Queens.

No.	Date.	Location.	Cause.	Result.
1	May 18	Woodhaven avenue, south of Pipe Line, Aqueduct ..	Public nuisance	Complied Oct. 6.
2	" 18	North Hempstead road, near Maiden lane, Newtown.....	"	" May 19.
3	" 18	Corner Beaufort and Tyn-dall streets, Jamaica.....	Defective plumbing and defective drainage.....	" Oct. 10.
4	Aug. 25	West side Lawn avenue, first house north of Liberty avenue, Ozone Park.....	Defective plumbing and defective drainage.....	Complied Nov. 18.
5	" 25	West side Lawn avenue, second house north of Liberty avenue, Ozone Park.....	Defective drainage.....	" Nov. 18.
6	Sept. 28	No. 161 Main street.....	Defective plumbing and defective drainage.....	" Dec. 16.
7	Dec. 21	East side of Betts avenue, 600 feet north of Maspeth avenue	Public nuisance.....	Work progressing.
8	" 21	East side of Betts avenue, 550 feet north of Maspeth avenue	"	"

Borough of Richmond.

No.	Date.	Location.	Cause.	Result.
1	July 13	East side of Caroline street...	Defective drainage.....	Complied Dec. 15.
2	Aug. 3	No. 54 Maple avenue	"	" Nov. 7.
3	" 3	No. 52 Maple avenue	"	" " 7.
4	Oct. 6	No. 15 Roff street, Second } Ward	"	Work progressing.
5	" 6	No. 17 Roff street, Second } Ward	"	"
6	Nov. 2	North side of Amboy ave- } nue, near Laforge property }	"	Complied Dec. 20.

Summary of Premises Ordered Vacated during the Year 1904.

Number of premises ordered vacated after giving notice.....	222
Number of orders complied with before vacation of premises.....	136
Number of houses vacated after notice.....	27
Number of premises work in progress.....	58
Number of orders rescinded by the Board.....	1

Of Those Vacated:

Work in progress.....	22
Orders not complied with.....	5

WORK PERFORMED BY THE DIVISION OF INSPECTION.

Work Performed by the Inspectors.

Total number of inspections and reinspections.....	691,417
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Inspections Classified as to Character of Premises.

Number of tenement-houses.....	7,780
Number of shore inspections.....	3,170
Number of lodging-houses.....	1,298
Number of private dwellings.....	15,044
Number of mercantile establishments.....	18,467
Number of manufactories and workshops.....	3,819
Number of stables.....	3,490
Number of sunken and vacant lots.....	1,817
Number of miscellaneous.....	*587,682

Total number of inspections.....	642,567
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Number of complaints forwarded for Board orders.....	16,671
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Number of reinspections on orders.....	48,850
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Number of specimens of milk examined.....	†16,152
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Number of specimens of milk collected for analysis.....	†2,097
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Number of quarts of adulterated milk destroyed.....	†4,539
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Number of analyses.....	1,011
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Number of permits issued.....	15,299
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Number of arrests.....	565
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Number of persons held on bail.....	373
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Number of persons discharged.....	25
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Number of pounds of milk, fruit, food, meat and fish, condemned and destroyed	7,540,405
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Mercantile Establishments.

Number of citizens' complaints received.....	163
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Number of citizens' complaints returned for orders.....	118
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Number of citizens' complaints returned as negative.....	106
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Number of original complaints forwarded for orders.....	867
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*Includes inspections of milk, fruit, food, meat, etc.

†See Division of Chemistry, also.

Number of children interviewed applying for certificates.....	44,277
Number of employment certificates granted.....	15,191
Number of employment certificates refused.....	8,277
Number of duplicate certificates issued.....	699

The number of dead animals and the quantity of offal, garbage, etc., removed from the shore front by the Shore Inspectors was:

Dogs	721
Cats	340
Rats	421
Goats	19
Sheep	86
Hogs	25
Calves	1
Horses	98
Fowls	394
Total.....	2,105

Fish, number of.....	380
Mattresses, number of.....	335
Offal, pieces of.....	263
Bedding, pieces of.....	276
Clothing, pieces of.....	397
Meats, pieces of.....	725
Human bodies, number of.....	9

Work Performed by the Sanitary Police.

Number of inspections and reinspections.....	283,938
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Inspections Classified as to Character of Premises.

Number of tenement-houses.....	34,435
Number of lodging-houses.....	1,748
Number of private dwellings.....	23,131
Number of mercantile establishments.....	307
Number of manufactories and workshops.....	5,633
Number of stables.....	19,933
Number of manure dumps.....	8,264
Number of sunken and vacant lots.....	8,348
Number of miscellaneous.....	149,772

Total number of inspections.....	251,571
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Number of complaints forwarded for Board orders.....	13,904
Number of complaints made and referred to Inspectors.....	1,266
Number of nuisances abated by personal effort.....	17,224
Number of visits to stop work, close stores, and premises under observation on account of contagious diseases.....	2,515
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Number of reinspections on orders.....	32,367
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Number of arrests.....	2,950
Number of persons held on bail.....	584
Number of persons discharged.....	428
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WORK PERFORMED BY THE DIVISION OF CONTAGIOUS DISEASES.

Number of visits to cases of contagious diseases.....	235,124
Number of cases visited for special diagnosis.....	10,720
Number of cases treated with diphtheria antitoxin.....	748
Number of persons immunized with diphtheria antitoxin.....	2,183
Number of complaints forwarded for Board orders.....	371
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Number of visits to tenement-houses.....	243,199
Number of visits to hotels.....	711
Number of visits to schools and institutions.....	130,574
Number of visits to private houses.....	37,103
Number of visits, miscellaneous.....	45,113
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Total number of visits.....	456,700
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Number of primary vaccinations.....	30,768
Number of revaccinations.....	164,136
Number of vaccinations in schools.....	48,035
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Total number of vaccinations.....	242,939
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Number of certificates of vaccinations issued.....	40,294
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Number of inspections of stables by Veterinarians.....	7,898
Number of animals examined.....	44,814
Number of post-mortems on animals.....	195
Number of glandered horses condemned.....	843

Number of persons removed to Contagious Disease Hospital.....	5,577
Number of dead bodies removed to Morgue.....	66
Number of houses visited for disinfection.....	64,224
Number of infected rooms disinfected.....	92,698
Number of times ambulances, etc., disinfected.....	3,515
Number of pieces infected goods disinfected.....	121,034
Number of pieces infected goods destroyed.....	35,176
Total number of inspections.....	528,822

Number of Communicable Diseases Reported.

Boroughs.	Diphtheria and Croup.	Scarlet Fever.	Measles.	Tuberculosis.	Typhoid Fever.	Parotiditis.	Cerebro-Spinal Meningitis.	Chicken-pox.	Whooping Cough.	Small-pox.	Erysipelas.	Total.
Year, 1904.												
Manhattan	11,016	7,747	17,838	12,579	1,916	622	228	2,124	585	41	196	54,892
Brooklyn	5,026	4,037	10,321	4,539	1,050	...	209	1,335	327	29	..	26,873
The Bronx	1,167	974	2,651	943	220	8	29	373	24	2	4	6,395
Queens	517	323	848	444	133	1	8	147	31	1	3	2,456
Richmond.....	432	414	1,203	218	93	89	8	284	49	1	14	2,805
Quarantine .....	.....	.....	.....	.....	...	...	..	...	...	8	..	8
Total.....	18,158	13,495	32,861	18,723	3,412	720	482	4,263	1,016	82	217	93,429

Work Performed by the Medical School Inspectors.

SCHOOLS.	Number of Visits to Schools.	Number of Children Examined.	Number of Children Excluded.
Public Schools	75,530	10,553,319	23,462
Parochial Schools.....	15,921	1,247,444	1,231
Industrial Schools, American Female Guardian Society.....	1,018	104,039	169
Industrial Schools, Children's Aid Society.....	2,205	222,687	311
Private Schools	293	8,125	6
Kindergarten Schools.....	6,799	100,436	190
Total.....	101,766	12,236,050	25,369

Table Showing Diseases for Which Children Were Excluded.

Schools.	Measles.	Diphtheria.	Scarlet Fever.	Whooping Cough.	Mumps.	Contagious Eye Diseases.	Pediculosis.	Chicken-pox.	Skin Diseases.	Miscellaneous.	Total Excluded.
Public Schools	*886 1,095	*98 138	*32 49	.... 174	.... 529	.... 9,621	.... 8,234	*611 716	.... 1,963	.... 943	.... 23,462
Parochial Schools.....	*30 34	*2 3	....	.... 1	.... 15	.... 726	.... 299	*24 29	.... 108	.... 16	.... 1,231
Industrial Schools, American Female Guardian Society...	*9 11	....	....	.... 4	.... 2	.... 79	.... 49	*3 4	.... 17	.... 3	.... 169
Industrial Schools, Children's Aid Soci- ety	*10 11	*2 6	*3 3	.... 4	.... 20	.... 162	.... 74	*7 7	.... 11	.... 13	.... 311
Private Schools.....	....	....	....	....	1	1	1	....	....	3	6
Kindergarten Schools. {	*17 21	*5 8	*2 3	.... 4	.... 5	.... 35	.... 60	*22 24	.... 24	.... 6	.... 190
Total..... {	*952 1,172	*107 155	*37 55	.... 187	.... 572	.... 10,624	.... 8,717	*667 780	.... 2,123	.... 984	.... 25,369

*Cases of true Measles, Diphtheria, Scarlet Fever and Chicken-pox.

Work Performed by the School Nurses.

Number of visits to tenements.....	26,788
Number of visits to schools.....	27,126
Number of miscellaneous visits.....	1,213
Total number of visits.....	55,127

Number of Cases of Diseases Cared for.

Pediculosis	511,197
Contagious eye diseases.....	205,085
Scabies	1,448
Ringworm	18,854
Impetigo	3,720
Favus	279
Measles	64
Scarlet Fever.....	605
Diphtheria	109
Miscellaneous	45,126
Total.....	786,487

Work Performed by the Summer Corps.

Number of houses visited.....	50,570
Number of families visited.....	270,639
Number of miscellaneous visits.....	342
Number of sick treated.....	3,063
Number of diarrhoeal cases treated.....	2,211
Number of dysenteric cases treated.....	69
Number of respiratory cases treated.....	196
Number of contagious diseases treated.....	320
Number of miscellaneous cases treated.....	267
Number of revisits.....	2,792
Number of circulars distributed.....	85,728
Number of St. John's Guild Tickets distributed.....	3,960
Number of children examined for St. John's Guild.....	20,144
Number of nuisances abated.....	600
Number of complaints forwarded.....	127
Number of other Doctor's patients treated.....	1,982
Number of ice tickets distributed.....	6
Number of milk tickets distributed.....	3,382
Number of milk inspections.....	3,816
Number of notices sent to King's Daughters.....	49
Number of patients sent to Seaside Hospital, Coney Island.....	42

Work Performed at the Department Eye Hospitals and Dispensaries.

Number of cases treated by operation.....	1,729
Number of cases treated without operation.....	7,775
<hr/>	
Total number of children treated.....	9,504
Number of visits made for subsequent treatment.....	122,628
<hr/>	
Total number of treatments.....	132,132
<hr/>	
Number of children not having trachoma examined.....	1,815
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WORK PERFORMED BY THE DIVISION OF BACTERIOLOGY.

Work Performed at the Diagnosis Laboratory.

Number of new cases treated with antitoxin.....	3,691
Number of curative injections.....	4,666
Number of cases immunized.....	7,384
Number of cases intubated.....	143
Total number of diphtheria inspections.....	10,886
Number of living cases of tuberculosis investigated.....	6,724
Number of dead cases of tuberculosis investigated.....	3,919
Number of miscellaneous inspections.....	2,012
Total number of inspections.....	48,359
Number of original complaints.....	783
Number of fumigations.....	4,083
<hr/>	
Number of bacteriological diagnosis of suspected diphtheria.....	27,198
Number of cases found to be true diphtheria.....	12,083
Number of cases found not to be true diphtheria.....	14,458
Number of cases bacteriological diagnosis indecisive.....	657
Number of bacteriological examinations of healthy throats in infected families	1,195
Number of later bacteriological examinations of diphtheria (convalescent)	25,895
Number of cultures taken by Medical School Inspectors.....	565
Number of bacteriological examinations of sputum from cases of suspected tuberculosis.....	16,971
Number of tubercle bacilli found.....	6,033
Number of tubercle bacilli not found.....	10,938
Number of specimens of blood examined for typhoid fever reaction (Widal test).....	4,917
Number of specimens showing positive reaction.....	863
Number of specimens showing negative reaction.....	3,119
Number of specimens showing doubtful reaction.....	935
Number of specimens of urine examined for typhoid fever reaction (Diazo)	861
Number of specimens showing positive reaction.....	252
Number of specimens showing negative reaction.....	515
Number of specimens showing doubtful reaction.....	94
Number of specimens of blood examined for malarial organisms.....	809
Number of malarial organisms found.....	14
Number of malarial organisms not found.....	795

Number of visits to collect diphtheria culture tubes, samples of sputum, etc.	24,225
Number of laboratory preparations made.....	82,885
Number of culture tubes prepared.....	91,093
Number of swabs made.....	94,190

Work Performed at Department Clinic for Communicable Pulmonary Diseases.

New Cases—

Number of males treated.....	1,742
Number of females treated.....	897
Total number of new cases treated.....	2,639

Old Cases—

Number of males treated.....	5,776
Number of females treated.....	2,633
Total number of old cases treated.....	8,409
Total number of treatments.....	11,048

Work Performed at the Vaccine Laboratory.

Number of visits to tenement-houses.....	2,037
Number of visits to institutions.....	2
Total number of visits.....	2,039
Total number of primary vaccinations.....	1,439
Number of vaccination certificates issued.....	1,304
Number of specimens of vaccine virus tested bacteriologically.....	600
Number of animals vaccinated.....	127
Number of animals collected from.....	122
Number of grammes of vaccine virus collected.....	4,205.5
Number of cubic centimetres of liquid vaccine virus prepared.....	15,481
Number of spades charged with humanized virus.....	3,605
Number of capillary tubes of vaccine virus prepared.....	134,664
Number of small vials of vaccine virus prepared.....	3,177
Number of large vials of vaccine virus prepared.....	7,102
Number of mailing blocks prepared.....	59,785
Number of autopsies on animals.....	125
Number of white mice injected with vaccine virus.....	186
Number of other animals experimented upon.....	19

Work Performed at the Research Laboratory.

Number of bacteriological examinations of old cultures of diphtheria bacilli	1,646
Number of inoculations of animals with toxins for development of anti-toxic substances.....	440
Number of animals bled for antitoxic serums.....	110
Number of c. c. of diphtheria antitoxic serum produced.....	537,670
Number of c. c. of diphtheria antitoxic serum bottled for distribution..	266,531
Number of c. c. of tetanus antitoxic serum produced.....	29,755
Number of c. c. of tetanus antitoxic serum bottled for distribution....	8,115
Number of c. c. of antidysenteric serum produced.....	8,947
Number of c. c. of antidysenteric serum bottled for distribution.....	300
Number of c. c. of mallein produced.....	1,000
Number of c. c. of mallein bottled for distribution.....	767
Number of c. c. of tuberculin produced.....	550
Number of c. c. of tuberculin bottled for distribution.....	407
Number of samples of toxins tested.....	174
Number of samples of antitoxic serums tested.....	505
Number of specimens from cases of dysentery examined.....	8
Number of bacteriological examinations of water.....	102
Number of bacteriological examinations of milk.....	1,397
Number of miscellaneous bacteriological examinations.....	10,464

Pasteur Treatment.

Number of cases receiving Pasteur treatment.....	116
Number of injections made in patients.....	2,217
Number of inoculations of fixed virus.....	232

Diagnosis of Hydrophobia.

Number of animals received for diagnosis.....	74
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Work Performed by the Pathologist.

Number of autopsies (human).....	15
Number of bleedings for antitoxic serum.....	219
Number of cubic centimetres of serum prepared.....	688,560
Number of injections of animals.....	806

WORK PERFORMED BY THE DIVISION OF CHEMISTRY.

Total number of reports forwarded and filed.....	7,461
Total number of analyses.....	7,383

Classified as to the Character of Analyses.

Number of air.....	22
Number of alcohol.....	8
Number of alcoholic acids.....	2
Number of alcoholic liquors.....	37
Number of almond oil.....	23
Number of apple sauce.....	1
Number of baking powder.....	23
Number of banana coffee.....	1
Number of barrel stave.....	1
Number of beef steak.....	2
Number of beef (sliced).....	1
Number of beef (potted).....	1
Number of beef casings.....	6
Number of beer.....	6
Number of blue ointment.....	1
Number of boiler scales.....	1
Number of brandy.....	1
Number of bread.....	1
Number of buckwheat.....	2
Number of butter.....	5
Number of buttermilk.....	2
Number of cake.....	4
Number of candy.....	32
Number of capsules.....	2
Number of carbolic acid.....	1
Number of catsups.....	15
Number of cereal.....	1
Number of cheese.....	3
Number of chloroform.....	1
Number of chocolate covering.....	1
Number of chocolate liquor.....	1
Number of cinnamon.....	4
Number of citric acid.....	1
Number of coal.....	2
Number of cocoa.....	1

Number of coffee.....	6
Number of coloring matter.....	11
Number of corn starch.....	2
Number of cracker.....	1
Number of cream albumen.....	1
Number of creams.....	87
Number of cream of tartar.....	1
Number of creosote.....	1
Number of crystals.....	1
Number of disinfectant.....	5
Number of essence of ginger.....	1
Number of eggs.....	1
Number of experimental analyses.....	241
Number of fish.....	1
Number of food preservatives.....	2
Number of formaldehyde.....	7
Number of formaldehyde tablets.....	1
Number of formalin.....	5
Number of fruit syrups.....	5
Number of ginger.....	3
Number of glace pineapple.....	1
Number of green soap (tincture of).....	3
Number of grapes.....	1
Number of guaiacol carbonate.....	1
Number of hair preparation.....	1
Number of ham (potted).....	1
Number of herring (smoked).....	1
Number of horses intestines.....	1
Number of ice cream.....	1
Number of ice cream powder.....	2
Number of infants' food.....	1
Number of ink.....	1
Number of jelly.....	3
Number of jelly jowder.....	1
Number of liquid.....	21
Number of lemon extract.....	1
Number of liquid balm.....	2
Number of liquid (brown).....	1
Number of magnesium carbonate.....	1
Number of maple syrup.....	1
Number of material.....	1
Number of meat (minced).....	1

Number of meat (potted).....	1
Number of medicine.....	5
Number of milk (preserved).....	30
Number of milk (adulterated).....	1,546
Number of milk (unadulterated).....	3,669
Number of milk (condensed).....	78
Number of milk (evaporated).....	3
Number of milk (inj. ingredients).....	32
Number of milk (poisonous metals).....	2
Number of milk powder.....	1
Number of molasses.....	2
Number of mother's milk.....	1
Number of mustard.....	9
Number of oils.....	3
Number of opium.....	47
Number of olive oil.....	3
Number of orange ice.....	1
Number of ox tongue (potted).....	1
Number of oxygen.....	1
Number of paraform.....	2
Number of paraffin.....	1
Number of pepper.....	3
Number of phenacetin.....	12
Number of piano hammer.....	1
Number of pickles (bottled).....	1
Number of pills.....	5
Number of potassium iodide.....	1
Number of powder (prescription).....	2
Number of powdered sugar.....	2
Number of preservalin.....	3
Number of preservatives.....	2
Number of rochelle salt.....	1
Number of root beer.....	1
Number of rubber hose.....	2
Number of stomachs (men's).....	7
Number of salmon.....	6
Number of salophen.....	1
Number of sardines.....	3
Number of sarsaparilla.....	2
Number of sausages.....	3
Number of sephalgine.....	1
Number of soap.....	10

Number of soup.....	I
Number of strawberry jelly.....	I
Number of sugar coloring.....	I
Number of sulfonal.....	I
Number of sweating powders.....	I
Number of tablets.....	6
Number of tannic acid.....	2
Number of tea.....	3
Number of tomatoes.....	3
Number of tomato sauce.....	I
Number of tonic.....	I
Number of turpentine.....	I
Number of tongue (potted).....	I
Number of trional.....	I
Number of urine.....	22
Number of vanilla extract.....	5
Number of vanilla crystals.....	I
Number of vanillan.....	I
Number of vomit.....	I
Number of waters (sanitary analysis).....	1,092
Number of waters (cellar).....	63
Number of waters (distilled for poison).....	I
Number of whiskey.....	6
Number of white crystals.....	I
Number of white goods.....	2
Number of white lead.....	2
Number of wine.....	6
Number of zinc sulphate.....	I

Total number of analyses.....	7,383
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Number of lactometers tested.....	11
Number of thermometers tested.....	67

Work Performed by the Milk Inspectors.

Number of inspections.....	40,169
Number of specimens of milk examined.....	47,625
Number of specimens of milk collected.....	4,212
Number of quarts of adulterated milk destroyed.....	28,621
Number of arrests.....	408
Number of persons held on bail.....	338

Number of persons discharged.....	19
Number of persons dismissed.....	1
Number of persons acquitted.....	2
Number of sentences suspended.....	52
Number of trials.....	406
Amount of fines.....	\$7,340 00

The number of dead animals removed from the streets and the quantity of offal, etc., removed from the markets and slaughter-houses by the contractors was:

Number of horses.....	18,589
Number of mules.....	26
Number of donkeys.....	10
Number of colts.....	57
Number of ponies.....	8
Number of cows.....	446
Number of calves.....	1,447
Number of sheep.....	423
Number of goats.....	145
Number of hogs.....	72
Number of lions.....	2
Number of cats and dogs.....	95,642
Number of dogs from public pound.....	20,596

Total number of animals.....	137,463
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Offal, barrels of.....	19,763
Fish, barrels of.....	13,517
Poultry, barrels of.....	998
Rabbits, barrels of.....	4
Lamb's fries, barrels of.....	1
Beef, quarters of.....	289
Veal, quarters of.....	1,912
Meat, boxes of.....	79
Meats, assorted, boxes of.....	102
Beef, canned, cases of.....	63
Livers, pounds of.....	300
Beef, pounds of.....	500
Meats, assorted, pounds of.....	2,300
Tripe, kegs of.....	3
Sharks, number of.....	1

REPORT OF PATIENTS TREATED AT RECEPTION HOSPITAL.

BOROUGH OF MANHATTAN.

General Statement.

1904.	Males.	Females.	Total.	Native.	Foreign.	Total.	Accompanying.
Remaining in Hospital, December 31, 1903..... }	3	....	3	2	1	3	....
Admitted.....	1,070	992	2,062	1,419	643	2,062	50
Total.....	1,073	992	2,065	1,421	644	2,065	50
Discharged	93	81	174	102	72	174	6
Transferred.....	934	863	1,797	1,236	561	1,797	44
Died	44	40	84	75	9	84	....
Total.....	1,071	984	2,055	1,413	642	2,055	50
Remaining in Hospital, December 31, 1904..... }	2	8	10	8	2	10	....

Remaining December 31, 1903.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Measles	1	..	..	1	..	1	..	..	..	1
For observation	1	1	..	1	..	1	1	..	1	2

Admitted.

Diphtheria	46	20	18	32	35	67	8	9	17	84
Scarlet fever	255	358	138	252	328	580	74	97	171	751
Measles	295	102	191	190	184	374	128	86	214	588
Small-pox	2	2	30	12	11	23	9	2	11	34
Varicella	17	4	12	13	9	22	8	3	11	33
Pertussis	23	2	..	12	12	24	1	..	1	25
German measles	14	10	32	16	12	28	11	17	28	56
Diphtheria and scarlet fever	24	18	7	22	18	40	5	4	9	49
Diphtheria and measles	50	8	2	23	29	52	5	3	8	60
Diphtheria and varicella	5	..	..	2	3	5	..	..	..	5
Diphtheria and pertussis	2	..	..	1	1	2	..	..	..	2
Diphtheria and German measles	1	..	..	1	..	1	..	..	..	1
Diphtheria, scarlet fever and measles	1	1	..	1	1	2	..	..	..	2
Scarlet fever and pertussis	1	..	..	..	1	1	..	..	..	1
Measles and pertussis	4	..	..	1	2	3	1	..	1	4
Measles and varicella	1	..	..	..	1	1	..	..	..	1
Mumps	1	..	8	2	2	4	5	..	5	9
Tuberculosis	2	3	165	63	16	79	72	19	91	170
Total	744	528	603	643	665	1,308	327	240	567	1875
For observation	56	39	92	60	51	111	40	36	76	187
Accompanying	8	..	42	1	7	8	3	39	42	50

Discharged.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria	12	8	12	7	15	22	3	7	10	32
Scarlet fever.....	3	5	6	6	6	12	2	..	2	14
Measles.....	1	..	6	3	1	4	3	..	3	7
Varicella .....	..	1	2	..	..	..	3	..	3	3
Pertussis	4	1	..	1	4	5	..	..	..	5
German measles.....	..	2	1	1	1	2	1	..	1	3
Diphtheria and scarlet fever.....	..	..	1	..	1	1	..	..	..	1
Diphtheria and measles.....	1	..	..	..	1	1	..	..	..	1
Diphtheria, scarlet fever and measles.....	..	1	..	..	1	1	..	..	..	1
Mumps.....	..	..	7	1	1	2	5	..	5	7
Tuberculosis.....	..	..	1	1	..	1	..	..	..	1
Total.....	21	18	36	20	31	51	17	7	24	75
For observation.....	18	18	63	29	22	51	27	21	48	99
Accompanying	2	..	4	..	3	3	1	2	3	6

Transferred.

Diphtheria.....	17	8	4	14	10	24	4	1	5	29
Scarlet fever.....	241	343	128	239	309	548	70	94	164	712
Measles.....	288	102	183	184	180	364	125	84	209	573
Small-pox	2	2	30	12	11	23	9	2	11	34
Varicella	17	3	10	13	9	22	5	3	8	30
Pertussis	19	1	..	11	8	19	1	..	1	20
German measles.....	14	8	31	15	11	26	10	17	27	53
Diphtheria and scarlet fever.....	19	18	6	19	15	34	5	4	9	43
Diphtheria and measles.....	39	8	2	18	24	42	4	3	7	49
Diphtheria and varicella.....	2	..	..	..	2	2	..	..	..	2
Diphtheria and pertussis.....	1	..	..	1	..	1	..	..	..	1
Scarlet fever and pertussis.....	1	..	..	..	1	1	..	..	..	1
Measles and pertussis	3	..	..	..	2	2	1	..	1	3
Measles and varicella.....	1	..	..	..	1	1	..	..	..	1

Transferred—Continued.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Mumps.....	1	..	..	1	..	1	..	..	..	1
Tuberculosis.....	2	3	164	62	16	78	72	19	91	169
Total.....	667	496	558	589	599	1,188	306	227	533	1721
For observation.....	30	18	28	26	22	48	13	15	28	76
Accompanying.....	6	..	38	1	4	5	2	37	39	44

Died.

Diphtheria	16	4	2	10	10	20	1	1	2	22
Scarlet fever	9	10	3	7	11	18	2	2	4	22
Measles	7	..	1	4	3	7	..	1	1	8
Diphtheria and scarlet fever	5	..	..	3	2	5	..	..	..	5
Diphtheria and measles	10	..	..	5	4	9	1	..	1	10
Diphtheria and varicella	2	..	..	1	1	2	..	..	..	2
Diphtheria and pertussis	1	..	..	..	1	1	..	..	..	1
Diphtheria and German measles	1	..	..	1	..	1	..	..	..	1
Diphtheria, scarlet fever and measles	1	..	..	1	..	1	..	..	..	1
Measles and pertussis	1	..	..	1	..	1	..	..	..	1
Total	53	14	6	33	32	65	4	4	8	73
For observation.....	8	2	1	6	4	10	1	..	1	11

Remaining December 31, 1904.

Diphtheria	1	..	..	1	..	1	..	..	..	1
Scarlet fever.....	2	..	1	..	2	2	..	1	1	3
Measles.....	..	..	1	..	..	..	..	1	1	1
Diphtheria and varicella	1	..	..	1	..	1	..	..	..	1
Mumps .....	..	..	1	..	1	1	..	..	..	1
Total.....	4	..	3	2	3	5	..	2	2	7
For observation.....	1	2	..	..	3	3	..	..	..	3

Recapitulation.

	Remaining Dec. 31, 1903.		Admitted.		Discharged.		Trans- ferred.		Died.		Remain- ing Dec. 31, 1904.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Diphtheria	40	44	10	22	18	11	11	11	1	..
Scarlet fever.....	326	425	8	6	309	403	9	13	..	3
Measles	1	..	318	270	6	1	309	264	4	4	..	1
Small-pox	21	13	..	..	21	13	..	..	..	..
Varicella	21	12	3	..	18	12	..	..	..	..
Pertussis	13	12	1	4	12	8	..	..	..	..
German measles.....	27	29	2	1	25	28	..	..	..	..
Diphtheria and scarlet fever...	27	22	..	1	24	19	3	2	..	..
Diphtheria and measles.....	28	32	..	1	22	27	6	4	..	..
Diphtheria and varicella.....	2	3	..	..	..	2	1	1	1	..
Diphtheria and pertussis.....	1	1	..	..	1	..	..	1	..	..
Diphtheria and German measles	1	..	..	..	..	..	1	..	..	..
Diphtheria, scarlet fever and } measles.....	1	1	..	1	..	..	1	..	..	..
Scarlet fever and pertussis.....	1	..	..	..	1	..	..	..	..
Measles and pertussis.....	2	2	..	..	1	2	1	..	..	..
Measles and varicella	1	..	..	..	1	..	..	..	..
Mumps.....	7	2	6	1	1	..	..	..	..	1
Tuberculosis	135	35	1	..	134	35	..	..	..	..
Total.....	1	..	970	905	37	38	895	826	37	36	2	5
For observation.....	2	..	100	87	56	43	39	37	7	4	..	3
Accompanying	4	46	1	5	3	41	..	..	..	..

REPORT OF PATIENTS TREATED AT THE WILLARD PARKER HOSPITAL.

BOROUGH OF MANHATTAN.

General Statement.

1904.	Males.	Females.	Total.	Native.	Foreign.	Total.	Accompanying.
Remaining in Hospital, Dec. 31, 1903.	15	25	40	29	11	40	..
Admitted.....	686	676	1,362	1,130	232	1,362	8
Total.....	701	701	1,402	1,159	243	1,402	8
Discharged	454	491	945	740	205	945	6
Transferred.....	25	22	47	42	5	47	..
Died	195	161	356	331	25	356	..
Total.....	674	674	1,348	1,113	235	1,348	6
Remaining in Hospital Dec. 31, 1904.....	27	27	54	46	8	54	2

Remaining December 31, 1903.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria	21	9	10	12	17	29	3	8	11	40

Admitted.

Diphtheria	749	358	255	587	543	1,130	99	133	232	1,362
Accompanying	5	..	3	4	1	5	..	3	3	8

Discharged.

Diphtheria	410	297	238	374	366	740	80	125	205	945
Accompanying	3	..	3	2	1	3	..	3	3	6

Transferred.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria	29	15	3	21	21	42	4	1	5	47

Died.

Diphtheria.....	300	40	16	180	151	331	15	10	25	356
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Remaining December 31, 1904.

Diphtheria	31	15	8	24	22	46	3	5	8	54
Accompanying	2	2	..	2	2

Recapitulation.

	Remaining December 31, 1903.		Admitted.		Dis- charged.		Trans- ferred.		Died.		Remain- ing December 31, 1904.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Diphtheria.....	15	25	686	676	454	491	25	22	195	161	27	27
Accompanying.....	..	..	4	4	2	4	..	..	..	..	2	..

REPORT OF THE PATIENTS TREATED AT RIVERSIDE HOSPITAL.

BOROUGH OF THE BRONX.

General Statement.

1904.	Males.	Females.	Total.	Native.	Foreign.	Total.	Accompanying.
Remaining in Hospital, Dec. 31, } 1903.....	84	97	181	118	63	181	7
Admitted.....	1,157	1,067	2,224	1,604	620	2,224	49
Total.....	1,241	1,164	2,405	1,722	683	2,405	56
Discharged.....	941	906	1,847	1,321	526	1,847	54
Died.....	190	169	359	278	81	359	1
Total.....	1,131	1,075	2,206	1,599	607	2,206	55
Remaining in Hospital, Dec. 31, } 1904.....	110	89	199	123	76	199	1

Remaining December 31, 1903.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria.....	12	3	..	4	11	15	..	..	..	15
Scarlet fever.....	16	44	13	35	16	51	10	12	22	73
Measles.....	17	13	18	7	23	30	8	10	18	48
Diphtheria and scarlet fever.....	15	8	2	7	10	17	2	6	8	25
Scarlet fever and measles.....	2	..	..	..	..	..	1	1	2	2
Tuberculosis.....	1	..	17	3	2	5	7	6	13	18
Total.....	63	68	50	56	62	118	28	35	63	181
Accompanying.....	2	..	5	..	..	..	1	6	7	7

Admitted.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria	46	36	7	42	39	81	3	5	8	89
Scarlet fever	272	478	154	315	383	698	86	120	206	904
Measles	332	160	214	243	236	479	127	100	227	706
Small-pox .....	..	..	1	..	..	..	..	1	1	1
Diphtheria and scarlet fever	61	36	7	35	49	84	10	10	20	104
Diphtheria and measles	64	12	1	28	40	68	5	4	9	77
Measles and varicella .....	..	1	..	..	..	..	..	1	1	1
Measles and pertussis	2	..	..	1	1	2	..	..	..	2
Scarlet fever and measles	53	18	2	26	30	56	12	5	17	73
Scarlet fever and varicella	2	..	..	..	2	2	..	..	..	2
Scarlet fever and pertussis	6	..	..	3	3	6	..	..	..	6
Scarlet fever, measles, and diphtheria	5	..	..	4	1	5	..	..	..	5
Measles, diphtheria and pertussis .....	..	..	1	..	1	1	..	..	..	1
Tuberculosis	2	12	239	107	15	122	110	21	131	253
Total	845	753	626	804	800	1,604	353	267	620	2224
Accompanying	8	1	40	1	9	10	1	38	39	49

Discharged.

Diphtheria	38	32	4	31	37	68	3	3	6	74
Scarlet fever	220	458	142	305	330	635	70	115	185	820
Measles	275	165	220	207	216	423	128	109	237	660
Small-pox .....	..	..	1	..	..	..	..	1	1	1
Diphtheria and scarlet fever	37	26	8	27	24	51	9	11	20	71
Diphtheria and measles	19	4	..	11	10	21	1	1	2	23
Measles and varicella .....	..	1	..	..	..	..	..	1	1	1
Measles and pertussis	2	..	..	1	1	2	..	..	..	2
Scarlet fever and measles	38	17	1	19	26	45	8	3	11	56
Scarlet fever and pertussis	4	..	..	3	1	4	..	..	..	4

Discharged—Continued.

	Age.			Native.			Foreign.			Total.
	Under 5 years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Scarlet fever, measles and diphtheria.....	2	..	..	2	..	2	..	..	..	2
Tuberculosis.....	2	9	122	63	7	70	53	10	63	133
Total.....	637	712	498	669	652	1321	272	254	526	1847
Accompanying.....	9	1	44	1	7	8	2	44	46	54

Died.

Diphtheria	16	3	..	12	7	19	..	..	..	19
Scarlet fever.....	43	24	11	27	30	57	11	10	21	78
Measles	70	2	5	38	31	69	7	1	8	77
Scarlet fever, measles and diphtheria.....	3	..	..	2	1	3	..	..	..	3
Measles, pertussis and diphtheria. ....	..	..	1	..	1	1	..	..	..	1
Diphtheria and scarlet fever	31	14	..	11	27	38	3	4	7	45
Diphtheria and measles.....	38	7	1	11	29	40	3	3	6	46
Scarlet fever and measles.....	15	1	1	7	3	10	4	3	7	17
Scarlet fever and pertussis.....	1	..	..	..	1	1	..	..	..	1
Tuberculosis.....	1	3	68	31	9	40	23	9	32	72
Total.....	218	54	87	139	139	278	51	30	81	359
Accompanying.....	1	..	..	..	1	1	..	..	..	1

Remaining in Hospital December 31, 1904.

Diphtheria	4	4	3	3	6	9	..	2	2	11
Scarlet fever.....	25	40	14	18	39	57	15	7	22	79
Measles.....	4	6	7	5	12	17	..	..	..	17
Scarlet fever and varicella.....	2	..	..	..	2	2	..	..	..	2
Scarlet fever and pertussis.....	1	..	..	..	1	1	..	..	..	1
Diphtheria and scarlet fever.....	8	4	1	4	8	12	..	1	1	13
Diphtheria and measles.....	7	1	..	6	1	7	1	..	1	8
Scarlet fever and measles.....	2	..	..	..	1	1	1	..	1	2
Tuberculosis.....	..	..	66	16	1	17	41	8	49	66
Total.....	53	55	91	52	71	123	58	18	76	199
Accompanying .....	..	..	1	..	1	1	..	..	..	1

Recapitulation.

	Remaining December 31, 1903.		Admitted.		Discharged.		Trans- ferred.		Died.		Remain- ing December 31, 1904.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Diphtheria	4	11	45	44	34	40	...	...	12	7	3	8
Scarlet fever	45	28	401	503	375	445	...	...	38	40	33	46
Measles	15	33	370	336	335	325	...	...	45	32	5	12
Small-pox .....	...	...	...	1	...	1	...	...	...	...	...	..
Diphtheria and scarlet fever...	9	16	45	59	36	35	...	...	14	31	4	9
Diphtheria and measles .....	...	...	33	44	12	11	...	...	14	32	7	1
Measles and varicella .....	...	...	...	1	...	1	...	...	...	...	...	..
Measles and pertussis .....	...	...	1	1	1	1	...	...	...	...	...	..
Scarlet fever and measles	1	1	38	35	27	29	...	...	11	6	1	1
Scarlet fever and varicella .....	...	...	...	2	...	...	...	...	...	...	...	2
Scarlet fever and pertussis .....	...	...	3	3	3	1	...	...	...	1	...	1
Scarlet fever, measles and } diphtheria .....	...	...	4	1	2	...	...	...	2	1	...	..
Measles, diphtheria and per- } tussis .....	...	...	...	1	...	...	...	...	...	1	...	..
Tuberculosis	10	8	217	36	116	17	...	...	54	18	57	9
Total	84	97	1,157	1,067	941	906	...	...	190	169	110	89
Accompanying	1	6	2	47	3	51	...	...	...	1	..	1

REPORT OF PATIENTS TREATED AT KINGSTON AVENUE HOSPITAL

BOROUGH OF BROOKLYN.

General Statement.

1904.	Males.	Females.	Total.	Native.	Foreign.	Total.	Accompanying.
Remaining in Hospital December 31, 1903.....	39	27	66	58	8	66	..
Admitted.....	921	931	1,852	1,177	675	1,852	199
Total.....	960	958	1,918	1,235	683	1,918	199
Discharged.....	709	721	1,430	917	513	1,430	183
Transferred.....	48	47	95	58	37	95	5
Died.....	135	121	256	198	58	256	..
Total.....	892	889	1,781	1,173	608	1,781	188
Remaining in Hospital December 31, 1904.....	68	69	137	62	75	137	11

Remaining in Hospital December 31, 1903.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria	2	6	1	5	3	8	..	1	1	9
Scarlet fever.....	3	20	5	16	8	24	..	4	4	28
Measles.....	1	3	2	3	1	4	2	..	2	6
Pertussis	3	1	..	2	2	4	..	..	..	4
Diphtheria and scarlet fever.....	..	1	..	..	1	1	..	..	..	1
Diphtheria and pertussis.....	2	..	..	1	..	1	1	..	1	2
Scarlet fever and pertussis.....	1	1	1	1
Small-pox	1	1	..	1	1
Varicella	1	12	1	8	6	14	14
Total	13	43	10	36	22	58	3	5	8	66

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Transferred.

	Age.			Native.			Foreign.			Total.
	Under 5 Years.	5 to 16 Years.	Over 16 Years.	Males.	Females.	Total.	Males.	Females.	Total.	
Diphtheria	5	9	1	9	4	13	1	1	2	15
Scarlet fever.....	11	6	4	10	8	18	1	2	3	21
Measles	31	8	1	5	9	14	16	10	26	40
Pertussis.....	2	..	..	..	2	2	..	..	..	2
German measles.....	2	1	1	2	2	4	..	..	..	4
Diphtheria and measles.....	1	..	..	..	..	..	..	1	1	1
Scarlet fever and measles.....	1	..	..	1	..	1	..	..	..	1
Varicella	4	3	..	1	3	4	..	3	3	7
Total.....	57	27	7	28	28	56	18	17	35	91
For observation.....	..	..	4	1	1	2	1	1	2	4
Accompanying	4	..	1	..	1	1	2	2	4	5

Died.

Diphtheria	49	15	4	38	26	64	3	1	4	68
Scarlet fever.....	25	24	..	23	18	41	4	4	8	49
Measles.....	66	4	2	16	24	40	17	15	32	72
Small-pox	1	..	5	1	2	3	1	2	3	6
Varicella	2	..	..	1	..	1	..	1	1	2
Pertussis	8	..	..	4	4	8	..	..	..	8
Diphtheria and scarlet fever.....	7	8	1	11	5	16	..	..	..	16
Diphtheria and measles.....	13	..	1	5	5	10	2	2	4	14
Diphtheria and German measles.....	1	2	..	1	2	3	..	..	..	3
Diphtheria and pertussis.....	2	..	..	1	1	2	..	..	..	2
Scarlet fever and measles.....	6	1	..	1	1	2	1	4	5	7
Scarlet fever and varicella.....	..	1	..	..	..	..	..	1	1	1
Scarlet fever and pertussis.....	1	..	..	1	..	1	..	..	..	1
Measles and pertussis.....	1	..	..	..	1	1	..	..	..	1
German measles.....	4	..	..	2	2	4	..	..	..	4
Total.....	186	55	13	105	91	196	28	30	58	254
For observation.....	2	..	..	2	..	2	..	..	..	2

Recapitulation.

	Remaining December 31, 1903.		Admitted.		Dis- charged.		Trans- ferred.		Died.		Remain- ing December 31, 1904	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Diphtheria.....	5	4	214	194	158	156	10	5	41	27	10	10
Scarlet fever.....	16	12	185	176	147	140	11	10	27	22	16	16
Measles.....	5	1	297	333	223	248	21	19	33	39	25	28
Small-pox.....	1	..	45	33	42	24	..	..	2	4	2	5
Varicella.....	8	6	51	53	53	47	1	6	1	1	4	5
Pertussis....	2	2	15	19	9	14	..	2	4	4	4	1
German measles.....	..	..	37	46	33	42	2	2	2	2	..	..
Diphtheria and scarlet fever....	..	1	24	19	11	12	..	..	11	5	2	3
Diphtheria and measles.....	..	..	15	21	8	13	..	1	7	7	..	..
Diphtheria and varicella.....	..	..	2	6	2	6	..	..	..	..	..	..
Diphtheria and pertussis.....	2	..	3	2	4	1	..	..	1	1	..	..
Diphtheria and German measles	..	..	2	3	1	1	..	..	1	2	..	..
Scarlet fever and measles.....	..	..	12	8	4	2	1	..	2	5	5	1
Scarlet fever and varicella.....	..	..	1	3	1	2	..	..	..	1	..	..
Scarlet fever and pertussis.....	..	1	1	1	..	2	..	..	1	..	..	..
Measles and pertussis.....	..	..	1	4	1	3	..	..	..	1	..	..
Measles and varicella.....	..	..	2	3	2	3	..	..	..	..	..	..
Measles, diphtheria and vari- cella.....	..	..	..	1	..	1	..	..	..	..	..	..
Measles, pertussis and vari- cella.....	..	..	1	..	1	..	..	..	..	..	..	..
Varicella and pertussis.....	..	..	..	1	..	1	..	..	..	..	..	..
Scarlet fever and German measles.....	..	..	3	..	3	..	..	..	..	..	..	..
Mumps.....	..	..	1	..	1	..	..	..	..	..	..	..
Total.....	39	27	912	926	704	718	46	45	133	121	68	69
For observation.....	..	..	9	5	5	3	2	2	2	..	..	..
Accompanying.....	..	..	3	196	..	183	2	3	..	..	1	10

Respectfully submitted,

CHAS. F. ROBERTS, M. D.,

Sanitary Superintendent.

DEPARTMENT OF HEALTH, CITY OF NEW YORK,
 SOUTHWEST CORNER OF 55TH STREET AND SIXTH AVENUE,
 BOROUGH OF MANHATTAN,
 NEW YORK, December 31, 1904. }

Hon. THOMAS DARLINGTON,

President of the Board of Health:

SIR—Since the removal of the Assistant Sanitary Superintendent of the Borough of Brooklyn, on August 10, 1904, the detail work of that borough has been directly under my charge and I herewith forward the report of the Chief Inspector of the Division of Inspections and the Chief Inspector of the Division of Contagious Diseases of that borough.

NEWTOWN CREEK.

Prior to the inauguration of Greater New York, January 1, 1898, the number of nuisances reported in the State Board of Health at Newtown Creek were from thirty-six individual premises. Owing to the action of the Board of Health since these premises have come directly under the control of the Health Department of the City of New York, these have been reduced to about ten locations where nuisances might occur, but the Department of Health has caused them to be so closely inspected and supervised that during the present year but few complaints have been received, and these of a minor character and at once abated on an order of the Board.

BARREN ISLAND.

Barren Island is situated in Jamaica Bay in the Borough of Brooklyn, where there are located four large establishments where nuisances might occur. This island is located within about a mile and a half to two miles of the seaside resorts around the City of New York, *i. e.*,

Coney Island,
 Brighton Beach,
 Manhattan Beach,
 Bergen Beach,

Rockaway Point and Park,
Arverne,
Hammels, etc.,

and these are occupied and visited by a floating population during the months of July and August which sometimes daily amounts to two or three hundred thousand people, and any foul odors arising from Barren Island are the subject of immediate complaint on the part of the residents and visitors to those resorts. Three of the above establishments on the island are devoted to the disposition of the City's waste, and one fertilizer manufactory under the control of the E. Frank Coe Company, who make sulphuric acid, import phosphate rock, and with the dried refuse of animal and vegetable matter manufacture a complete fertilizer. They are permitted to continue the manufacture in the fall and winter months only. During the summer months the working at the factory is discontinued. At two of the other factories on the island, technically known in the trade as "horse factories," are disposed of and utilized dead animals taken from the City streets, the offal of slaughter houses, dead dogs and cats from the various pounds of the City, which in the aggregate amounts to over 21,000 horses, cows, calves, sheep, hogs, etc., 156,000 cats and dogs, and 36,000 barrels of offal, poultry, etc. The other factory is the Sanitary Utilization Works, where is received and utilized about 500,000 tons of household and other garbage per year.

During the year 1902 many complaints were received in regard to the offensive odors arising from these factories. During May of the present year the factories were visited by myself and Sanitary Officer John W. Phillips, of the Health Squad, and changes and improvements recommended, which were carried out by the officers of the Sanitary Utilization Company. The establishments have been under daily supervision of Officer Phillips, and weekly visits on the part of the Sanitary Superintendent, and I am proud to state that not a single complaint has been received at the Health Department in regard to offensive odors arising from the same during the year 1904.

Respectfully submitted,

CHAS. F. ROBERTS, M. D.,
Sanitary Superintendent.

DEPARTMENT OF HEALTH, BOROUGH OF BROOKLYN, }
NEW YORK, December 31, 1904. }

To the Sanitary Superintendent:

SIR—I would respectfully submit the following statement relative to the work performed in the Division of Inspections during the year 1904.

Complaints.

The number of complaints received continue to increase from year to year. Notwithstanding the establishment of the Tenement House Department, the number of citizens complaints received for the current year was 11,960, as against 12,060 for the year 1903. The prompt investigation of complaints made by citizens is the first duty of the Sanitary Inspectors. The inspectors are further required to report all remediable nuisances in their respective districts. The organization of the Tenement House Department has lessened materially the opportunities for house to house inspections. A large part of the original work done by the inspectors is the ordering of sewer connection for premises on streets upon which sewers have been completed. Several hundred such orders have been issued.

Enforcement of Orders.

The same procedure in the enforcement of orders has been followed as for the past two years. This system is briefly as follows: When an order is returned not complied with, a notice in the name of the Corporation Counsel, threatening legal proceedings, is sent. These notices are prepared and mailed by a clerk in the Department of Health. If this does not secure compliance, an officer of the Health Squad visits the owner or responsible person, obtains from him an admission of responsibility, and notifies him that unless the order is immediately complied with, prosecution will be commenced. If, upon reinspection, the order is found not complied with, the matter is reported to a representative of the Law Department, who appears at the office of the Health Department upon one day in each week for the purpose of receiving

these reports. If the facts justify such action, a complaint is prepared upon which a warrant for the arrest of the delinquent is obtained. The cases are brought before a magistrate, by whom they are remitted to Special Sessions for trial, in accordance with section 1265 of the Charter.

Compliance with orders has been fairly well secured by this procedure, although it is deficient in many cases. Thus the Charter, as well as the Sanitary Code (sec. 13), makes "The owner, lessee, tenant and occupant" of any building where there is a violation of the Sanitary Code responsible therefor. Under this section it is frequently impossible to proceed against the person in whose control the premises are. Examples of these cases are those in which the property is in the hands of an agent with full power, the owner being frequently a non-resident or for other reasons, beyond the reach of legal process. The magistrates, under section 13 of the Sanitary Code, refuse to issue warrants in these cases. In order to remove this difficulty, an amendment to the Sanitary Code has been proposed, according to which agents and other parties in interest are made responsible, as well as owner, lessees, etc.

Furthermore, the process above outlined is too slow to secure prompt compliance with orders and abatement of nuisances in urgent cases. The frequent adjournments in the Court of Special Sessions and other delays seriously detract from the efficiency of the procedure. In addition the Court shows an indisposition to inflict substantial punishment in most of the cases prosecuted. While convictions are generally secured, the usual judgment of the Court is suspension of sentence, even in cases where the nuisance still exists at the time of conviction. The final result of this policy, when it becomes generally known to offenders, must be to bring the whole procedure of the Department for the enforcement of orders into contempt. For this reason, and in order to avoid wasting the time of the inspectors upon trials which generally result in a suspension of sentence, and frequently in acquittal, the policy of discontinuing prosecutions when compliance with orders has been secured, has been adopted. Fortunately most offenders evince a disposition to promptly comply with orders when prosecution has been commenced, so that the results under our present system have been thus far fairly good, notwithstanding the weakness above set forth.

The Chief Inspector has frequently in the past recommended as an effective means of securing the abatement of nuisances, in urgent cases, that the Board proceed under its powers to execute its orders through its own agents. For certain special classes of work this has been done, as, for instance, in the case of dairy stables. By this method all the unsanitary cow stables in the borough were closed in less than one year, a result which could not have been attained in several years, or indeed, at all, by the ordinary methods of prosecution. Many cases arise, which, in my opinion, should be thus handled, and I would respectfully renew, by recommendation, that suitable provisions be made in urgent cases, to execute orders of the Board through its own agents.

Vacation of Houses.

Up to about July of this year, the policy pursued in the Borough of Brooklyn, in regard to the vacation of houses, was to recommend this procedure only in those cases in which the condition of the premises in question was such as to constitute a direct and serious menace to the health of the occupants, or the occupants of adjoining premises. Under this view, cases calling for vacation do not frequently arise; thus up to July, 1904, this proceeding was recommended in but nine cases. Since July the proceeding has been used as a means of securing compliance with orders. The term, "unfit for human habitation," under a liberal construction, is sufficiently broad and elastic to include cases of violation of many provisions of the Sanitary Code; since August, 1904, vacation has been recommended in about one hundred cases. As a means of securing compliance with orders the proceeding is highly effective. When compliance is not promptly secured after the issuance of the order of vacation, the occupants are compelled to leave the premises.

Smoke Nuisance.

Up to the month of July no prosecutions for violation of the smoke ordinance were brought except in cases of actual nuisance, and upon complaint of citizens. During and after July, about one hundred arrests without warrant for violation of this section were made. No complaints have been received in these cases, in most of which the violation was

merely technical. Proprietors of wood-working establishments, who must dispose of their refuse by burning with unavoidable production of smoke, were included among those arrested. One of these, having been held in bail for trial at Special Sessions, secured a writ of *habeas corpus*, thus raising the question of the authority under which he was held and the validity of the smoke ordinance, section 96 of the Sanitary Code. Upon hearing, on the return of the writ, Mr. Justice Dickey pronounced this section, which attempted to make a crime of an innocent act, the *mere* discharge of smoke, "unreasonable, against public policy, unconstitutional and void," and ordered the discharge of the defendant. In accordance with this decision, all the cases then pending in Special Sessions were dismissed, and further warrants were refused by the magistrates. The smoke ordinance having thus been subjected to close legal scrutiny, it became exceedingly difficult to frame a section under which conviction could be obtained. The section adopted by the Board, while probably unobjectionable from a legal standpoint, is one under which it will be exceedingly difficult, if not impossible, to secure the necessary evidence for conviction. Certain it is that the "smoke nuisance," so called, as defined by the former section 96 of the Sanitary Code, is non-existent under the new section.

Well Water.

In the outlying sections of the borough large numbers of residents, being without public water supply, are dependent on wells for water. The work of systematically examining these sources of supply has been undertaken during the current year. This is done in accordance with section 63 of the Sanitary Code, which provides that water from wells, other than the public water supply, shall not be used without a permit from the Department of Health. Early in the year the Police Commissioner was requested to cause all persons using well water to be notified to make application to the Department of Health for a permit. Some 1,500 such notifications were made, and 608 applications for permits to use well water were received. In all of these cases samples of the water have been forwarded to the laboratory for analysis. Upon the receipt of the reports of these analyses the applications were forwarded to be granted or denied. 165 Samples were found to be contaminated.

In these cases a notice that the water is polluted is posted at the well, and an order directing that the use of the water be discontinued is issued.

Renovation After Cases of Tuberculosis.

During the eleven months ending November 30, 540 orders for the renovation of apartments which have been occupied by consumptives have been issued. These orders are made upon complaints forwarded by the Medical Inspectors. In the large majority of cases the orders are promptly complied with; in cases of non-compliance arrests are made. It would be desirable for the Department to exercise supervision of the work of renovation, to assure that it is so performed as to be effective as a measure of disinfection. With our present force of inspectors this is not possible.

Dairy Inspection.

One inspector is employed in the supervision of dairy stables throughout the borough. The work of closing the many unsanitary stables, which formerly existed in this borough, has been completed during the current year. The work of the inspector at the present time is largely educational, in the endeavor to teach the dairyman higher ideas of cleanliness and care in handling milk, in which direction much remains to be done.

Meat Inspection.

The inspection of meat has been carried on as in former years, attention being given chiefly to inspection of animals on the hoof and of the carcasses after slaughter. Shop inspections are also made through the borough. With our present force of inspectors the districts are so large that shop inspections are not as frequent as they should be, and in my opinion an increase in the number of inspectors is desirable.

Food Inspection.

Two inspectors are employed in the inspection of fruit, vegetables and foods other than meat and milk which are offered for sale in markets and stores. They also inspect the foreign fruit arriving at the Brooklyn piers. The difficulties encountered in disposing of these articles when condemned by the inspectors have been set forth in special reports. The efficiency of this inspection would be much enhanced by the provision of adequate means for disposing of condemned fruits and foods.

Employment Certificates.

At the beginning of the year the office for the issuance of employment certificates was located in a room in the basement, totally inadequate as to size, and badly lighted and ventilated. The office has been removed to the first floor, where much better accommodations are provided. The work performed in this office is the issuance of employment certificates in strict accordance with the letter of the law. The inconsistencies of the present law and the hardships and injustice worked by it in some cases have been fully set forth in special reports. While the Department of Health is no wise responsible for these defects, it would seem to me eminently proper for this Department, as the authority charged with the enforcement of the law, to secure correction of its defects by amendatory legislation at the coming session of the Legislature.

Inspection of Mercantile Establishments.

While no force of inspectors to be employed in the inspection of mercantile establishments has been provided, the attempt has been made during the current year to enforce the provisions of law applicable to these establishments. As no work along this line has ever before been done in Brooklyn, except as to the larger establishments, many violations of this kind have been found. The force available for the work is, however, totally inadequate for the enforcement of the law throughout the borough. As the duty to so enforce it is clearly upon the Department, an adequate force of inspectors should be provided for the purpose.

The work of the Division has been greatly facilitated during the current year by changes and increase in the clerical force. This force, for the first time since the organization of the Division, is now adequate to keep up the work even during the busy summer season. It is my hope that this improvement will be followed soon by one which will provide adequate and suitable office facilities, the need for which has been frequently set forth.

All of which is respectfully submitted.

HENRY V. WALKER,
Chief Inspector, Division of Inspections.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 NOS. 38 TO 40 CLINTON STREET, BOROUGH OF BROOKLYN, }
 NEW YORK, December 31, 1904. }

To the Sanitary Superintendent:

SIR—I have the honor to make the following report relative to the work of the Division of Contagious Diseases, Department of Health, Borough of Brooklyn, for the year ending December 31, 1904:

At the beginning of the year this division was in a satisfactory condition, considering the great number of new rules which had only been put into effect a few months previously. We have, during the past year, made improvements, particularly in our system of filing, and have been provided with adequate boxes for the storing of old cases, and in that way our files are not littered with cases that are no longer in demand.

The medical inspection of schools has progressed very satisfactorily during the past year; in fact, eminently satisfactorily, considering the reduced staff. The total number of inspections made by the medical school inspectors numbered 36,770, although the nurses assigned to the schools made in all 8,363 visits to schools, and also visited 4,659 children at their homes, making a total number of inspections of both schools and houses by the nurses of 14,214. Our staff of medical school inspectors has been considerably reduced by the assignment of four inspectors to do antitoxin work and by the assignment of other men to fill in our medical inspection districts.

In the medical inspection of districts the work has been exceedingly heavy, as we showed a very marked increase in the number of cases reported. Only one disease has decreased during the year just passed, namely, diphtheria. The inspectors have evidently kept a very close watch of their cases relative to isolation and quarantine, inasmuch as during the year eighty-eight (88) cases were forced to the hospital for violation of quarantine and fifty-one (51) stores were closed as a result of an infection in an apartment communicating. At the present time we have the borough divided into nineteen (19) medical districts, one of the districts being subdivided and an inspector assigned to aid the regular

inspector, making the regular inspector responsible for the district. Below you will find a table of the diseases reported during the years 1903 and 1904, with the increase or decrease noted:

	1903.	1904.	Increase.	Decrease.
Diphtheria	5,705	5,026	....	679
Scarlet Fever.....	2,921	4,037	1,116	
Measles	4,863	10,321	5,458	
Tuberculosis	3,426	4,539	1,113	
Typhoid Fever.....	1,003	1,050	47	
Chicken-pox	1,151	1,335	184	
Whooping Cough.....	321	327	6	
Small-pox	15	29	14	
Cerebro-spinal Meningitis.....	....	209	....
	19,405	26,873		

Cerebro-spinal meningitis was not tabulated during the year 1903; consequently I am unable to give you the increase or decrease.

The total number of cases of all diseases reported during the year was 26,873, showing an increase over the previous year of 7,464.

During the latter end of the year 1903, under the guidance of Doctor Billings and his assistant, Doctor Hubbard, of the Manhattan office, our system of tabulating and filing cases of tuberculosis was entirely changed, and the work in reference to this particular disease has been eminently satisfactory. The number of new cases of tuberculosis reported while living was 4,015, and the number of new cases reported only by death was 524, making a total of new cases for the year 1904 of 4,539, an increase over the previous year of 1,113 cases. The total number of inspections for tuberculosis during the year 1903 was 2,486, and for the year 1904 5,359, showing an increased number of inspections for the year 1904 of 2,873. The total number of tuberculosis patients instructed by the inspectors during the past year was 1,072. The total number (approximate) of fumigations for tuberculosis for 1903 was 900, and that for the year 1904 2,506, showing an increase of 1,606.

The same inspectors having charge of the tuberculosis work also constituted the antitoxin corps, administering antitoxin in curative doses and also immunizing doses and performing the operation of intubation. They have injected two hundred and eighty (280) curative doses and nine hundred and seventy-eight (978) immunizing doses during the past year.

Notwithstanding the fact that we have not had any regular vaccinating corps, depending entirely upon our medical school inspectors for use as vaccinators, with the exception of one man detailed to the office for that work and another man devoting about four days a week to outside vaccinations, we have secured in tenement and private houses, in the public schools and in the Department office, a total of 32,709 vaccinations and have issued 7,249 vaccination certificates.

In connection with the fumigation work 19,684 houses were visited and 23,194 rooms fumigated, these figures being, to my mind, positive evidence that isolation is being well maintained, as we fumigated less than two rooms to each case. Since adopting the use of a new fumigating agent, perfected by Mr. H. V. Walker, Chief Inspector of the Division of Inspections assigned to this borough, we have obtained a very much greater percentage of successful fumigations than ever before in the history of this division. Our percentage of successful fumigations is now over ninety. This, considering the dilapidated condition of some of the rooms fumigated, the almost impossible feat of securely sealing doors, windows, etc., is, to my mind, quite remarkable. They have been comparatively few, if any, recurring cases in an apartment after fumigation within the proper period of incubation of the disease contracted. This also shows excellent work on the part of the disinfectors.

The veterinarians attached to this division, two in number, covering the entire borough, have, during the year 1904, examined 1,167 diseased animals. They have inspected and caused to be destroyed 271 glandered horses and made a total number of inspection of premises of 1,271.

There is no doubt but what our greatest improvement during the year just passed has been in connection with tuberculosis work. During the year 1903 there were but three renovations of apartments as a result of infection by tuberculosis. During the year 1904 we had a total

number of renovations of 617, and, with the staff of inspectors on tuberculosis work as constituted now, and with the addition of two nurses recently assigned to the work, I am positive that we will make even a better showing during the year 1905.

There is one thing, however, left to be desired, that is the establishment of a vaccination corps, and that, I think, is absolutely necessary to enable us to continue vaccination work on a large scale, and in that way reduce our number of small-pox cases in years to come.

The office help, of which we have at the present time a sufficient number, has, on the whole, done very excellent work. All of our records are in A1 order and strictly up to date. The clerks, office boys, etc., have conducted themselves with correct deportment and leave but very little to be desired in that direction, and I take this occasion to convey to them my thanks for their hearty support, and also to my superior officers for their kind indulgence and very willing and ready help.

All of which is respectfully submitted.

R. H. HERKIMER, M. D.,
Chief Medical Inspector.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 BOROUGH OF MANHATTAN. }
 NEW YORK, December 31, 1904. }

To the Assistant Sanitary Superintendent:

SIR—I have the honor to submit the following report of the work of the Division of Inspections for the year 1904:

SANITARY INSPECTIONS.

Under this head are characterized all those premises visited by the inspectors to investigate complaints where nuisances are claimed to exist or where inspections are made on the initiative of the inspector in the routine of his daily work. This class of inspections includes buildings of every description, as well as vacant property. As a result a large variety of subjects are investigated. There is thus a thorough supervision exercised along these lines, and much valuable work done.

Under these circumstances it is scarcely possible for nuisances of a serious nature long to exist without being discovered and remedied. In establishments where the business is of a character likely to become offensive through the neglect of those who conduct them, a systematic supervision is maintained, such for instance as lodging-houses and stables, animal and poultry slaughter-houses, etc. These measures have the effect of preventing the development of unsanitary conditions which would certainly obtain except for the close surveillance under which the premises referred to are kept.

STABLES.

A general inspection of stables was made during the year, 15,106 inspections having been made, and a large number of orders issued resulting in very greatly improving the conditions in these places.

The Sanitary Code requires the owner of a stable located in a cellar to obtain a permit from the Board of Health, and these permits cannot, of course, be secured unless the cellars are properly equipped for the purpose. The adoption of this plan has led to a great reform in the conditions connected with this class of business.

Another feature of importance in connection with the maintenance of sanitary conditions in stables is the prompt removal of manure, and the manner in which it is handled during removal. It is required that all manure be removed from stables daily unless the same is pressed or bailed, and in the removal of loose manure it is required that it be loaded upon the carts within the stable, and when carted through the streets that it shall be properly covered. To secure the proper observance of these rules frequent visitations are necessary. There were thirty-seven arrests in the year for violation of these rules resulting in the imposition of fines amounting to \$102.

COW STABLES.

There were in the borough of Manhattan at the beginning of this year 57 cow stables in which the aggregate number of cows kept was 158, of that number but 41 were kept below One Hundred and Twenty-fifth street, and the remainder above that line. These stables are thoroughly gone over each year and kept in a good sanitary condition.

The condition of the cows is also noted and any evidence of a diseased condition immediately investigated. Whenever it is found necessary, which rarely has happened in recent years, the diseased animal is destroyed.

At this time the number of stables has been reduced to 44, and the number of cows kept is 134.

VACANT LOTS.

The nuisances in connection with vacant lots consists of three kinds, viz.:

1st. Those which have been excavated or are naturally below the level of the sidewalk and are therefore dangerous places.

2d. Those used as a dumping ground for offensive material, and—

3d. Those lots that are sunken, undrained, and where stagnant water collects.

A large number of orders were issued during the year upon vacant lots, where one or the other of these conditions existed.

At the northern end of Manhattan Island at the location known as Inwood, there is a large area of low-lying land, part of which consists of swamp land. Some years ago streets were laid out in this section and culverts built under them to drain off the water into the Harlem river. These culverts, in the course of time became choked with solid material, and then the streets acted as dams, resulting in the formation of a series of pools, stretching from the junction of Nagle avenue and Broadway north to Isham street, covering a very large area. By opening up these culverts and filling in the low-lying land, and establishing sewer connections where possible, the ponds have been abolished in the largest part of the section. At least 10 to 15 acres have thus been reclaimed.

This instance is given to illustrate what is being accomplished along these lines. The number of inspections made of this class during the year amounts to 2,809. It will thus be seen that many stagnant pools

have been drained off and many places that would have otherwise been breeding places for mosquitoes have been abolished.

LODGING-HOUSES.

This class of business is conducted under permits from the Board of Health. There are 101 of these and one inspector is detailed to inspect them, so that a constant supervision is exercised over them. Among the 101 lodging-houses there are about 20 that house the lower class of lodgers, and in these it is difficult to maintain as good conditions as could be desired. The lodgers who inhabit the cheaper houses are personally unclean in their habits, and when from 50 to 100 of such persons are housed nightly the difficulties in way of preserving order and cleanliness are apparent. There are four things which call for special attention in connection with this class of lodging-houses, viz.:

1. Ventilation.
2. Bedding.
3. Floors, walls and ceilings.
4. Toilet accommodations.

1—*Ventilation.*

It is found that in most instances means are provided for the proper ventilation of the dormitories and watercloset apartments, but in the cold weather the means are not used to the extent they should be. The dormitories are, as a rule, provided with windows in the front and rear, which could be adjusted so as to provide constant and direct ventilation, but the practice of closing them and keeping them closed during the cold weather is observed in a number of instances. In order to secure proper ventilation by the means at hand it would be necessary to station an officer in such establishments each night to see that it was done, for as soon as the inspector leaves the place the windows are closed. Even when artificial means of ventilation is provided by way of shafts, etc., it is frequently found that the shafts are stopped up with cloths or other material to shut off the offending atmosphere.

2—*Bedding.*

The bedding used in lodging-houses consists usually of a mattress covered with a glazed leather covering and this in turn enclosed in a muslin or ticking cover; two sheets, a blanket, a pillow and pillow-case complete the equipment. The cot used is about 5 feet long by three feet wide, and in some instances, where the air space permits, usually on the office floor, double-deckers are used. The men who occupy these cots go to bed, in the majority of cases without any garments on, and without the formality of a bath, thus coming in direct contact with the bed-clothing. After one night's use the sheets and pillow-cases are filthy and should be washed. When it is remembered that the cost of a night's lodging in a number of these places is from 10 to 15 cents, and that it would cost from 3 to 5 cents to have the bed-clothing washed daily, it will be seen that when the business is conducted as a money-making scheme, there will be desire to avoid this expense. Nor is this all, for the clothing on the mattresses not only wears out in time, but it frequently happens that a drunken lodger going to bed with his shoes on will tear even a new mattress. The replacing of worn and torn mattress covers is delayed as long as possible in order to avoid the expense of new ones.

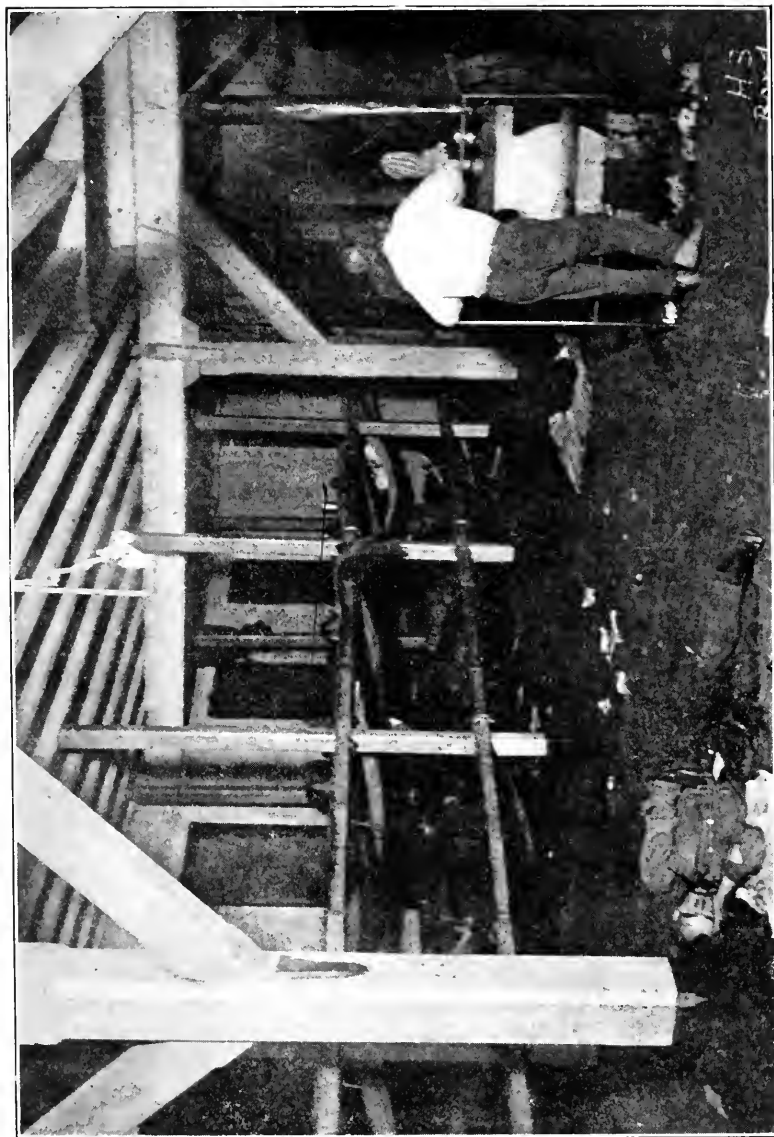
3—*Floors, Walls and Ceilings.*

In order to maintain a healthy condition of affairs the floors of all lodging-houses should be washed and scrubbed clean at least once a day. The dirt carried in on the shoes and clothing of the lodgers and the practice of more or less spitting renders the floors dirty over night. In most cases this rule is adopted.

In the cleaning of the floors we are prohibiting dry sweeping, but, in the poorer places where the help is shiftless and negligent, it requires constant vigilance to secure an observance of this requirement. After having been occupied through the winter and in the latter part of the fall of each year the walls and ceilings are required to be cleaned, painted and whitewashed.

4—*Toilet Accommodations.*

The toilet accommodations are usually distributed throughout the building, a group of from two to five on a floor. In most places there are independent means of ventilation, frequently windows opening to the external air, and in other cases being furnished with shaft ventilation.

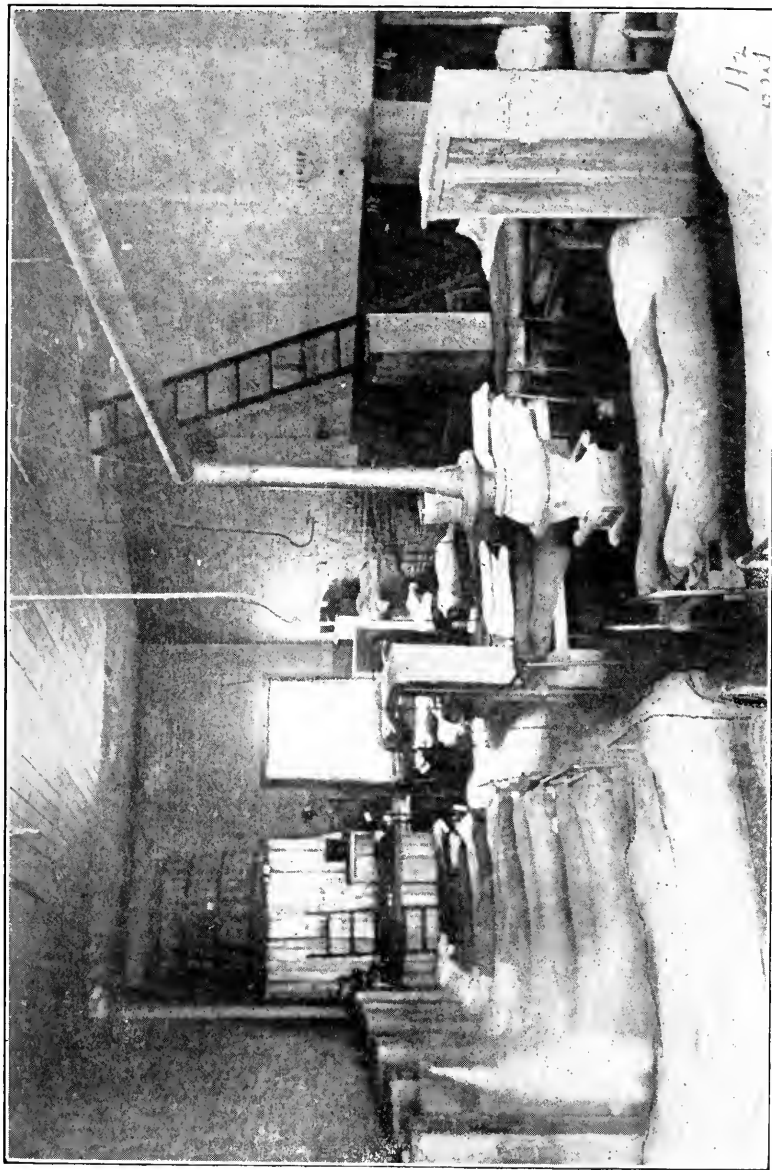


THIS PICTURE SHOWS THE TOP FLOOR OF A TEN CENT LODGING-HOUSE.

The windows are all tightly closed, and the stove in the centre of the room is red hot (winter). The bunks consist of strips of canvas fastened to transverse beams. A double row. Some of the men are asleep on the floor.



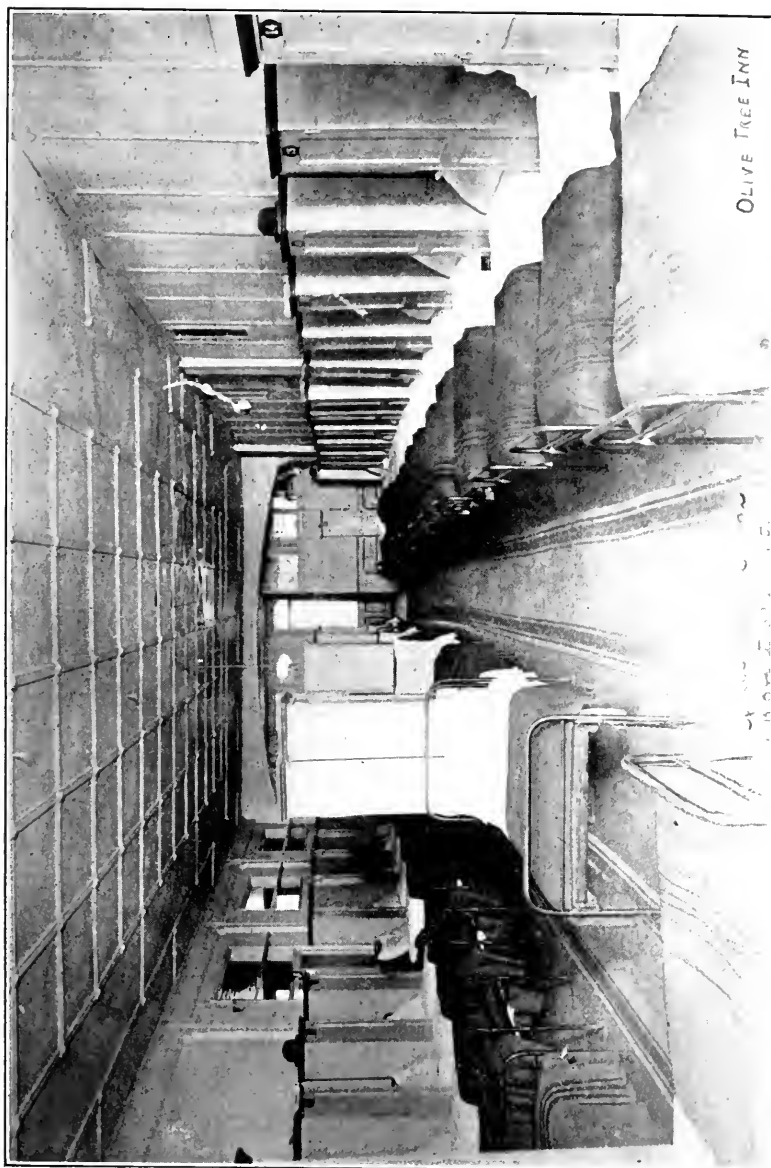
The following photographs illustrate the three classes of lodging-houses existing.



ANOTHER LOW TYPE OF LODGING-HOUSE IN WHICH THERE IS OVERCROWDING, LACK OF PROPER VENTILATION, AND INADEQUATE MEANS OF ESCAPE IN CASE OF FIRE.

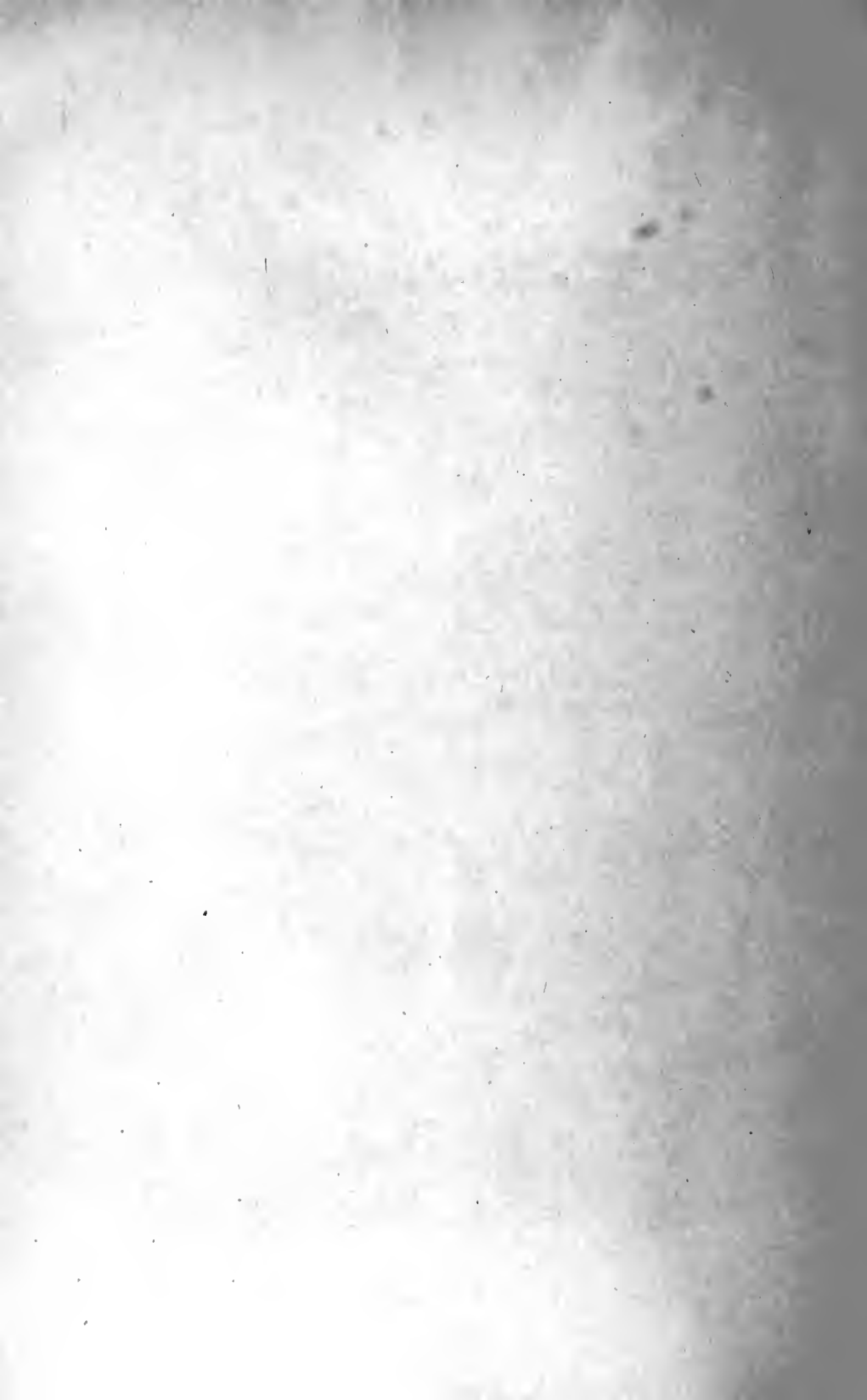
This represents the poorer class on the lower bowery. Stoves are used for heating and the ventilation is obtained by means of windows at either end of the room. This view is toward the rear and shows the window at that end of the room. The "lockers" in which the lodgers' clothes are kept are seen ranged along the side wall and standing between the beds. This is a top floor and the tank in the corner of the room is a storage-tank for water to supply the basins and waterclosets.

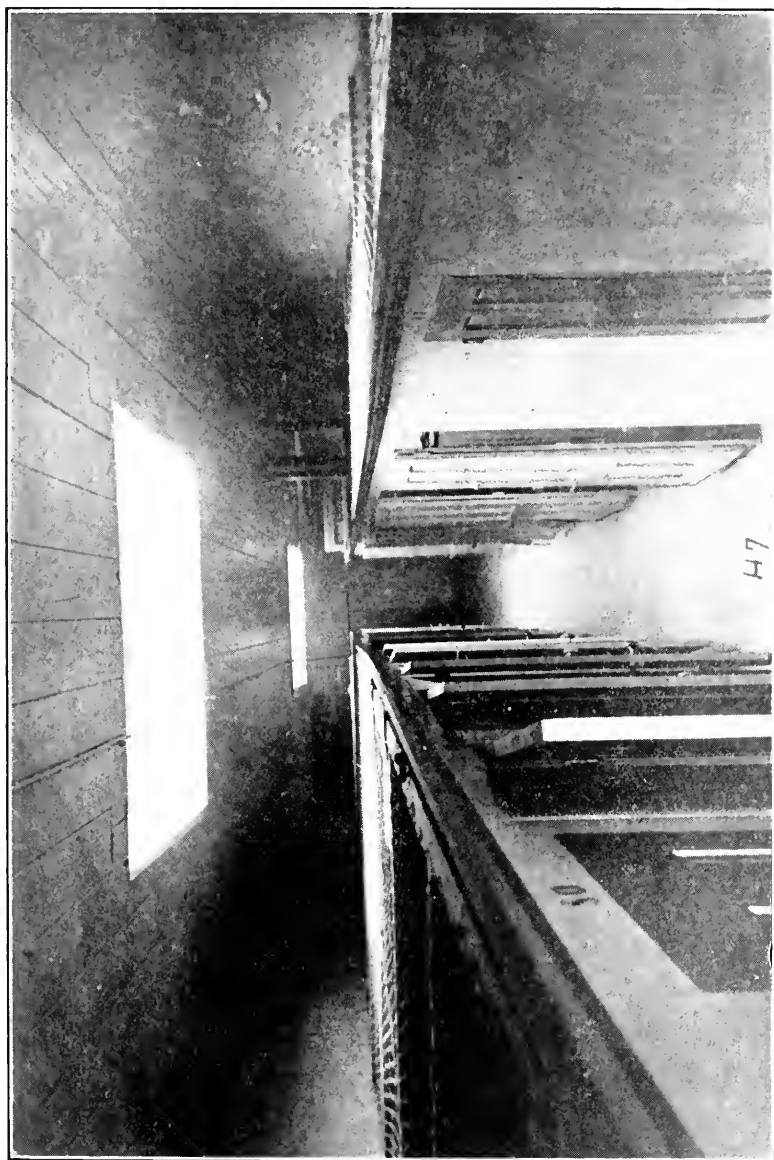




OLIVE TREE INN

Here, we have the cell or dwarf partition apartment. These rooms give more privacy than the dormitory plan and are higher priced. The system of ventilation is the same here as in the dormitory, the enclosed spaces depending upon front and rear window ventilation to the main room.

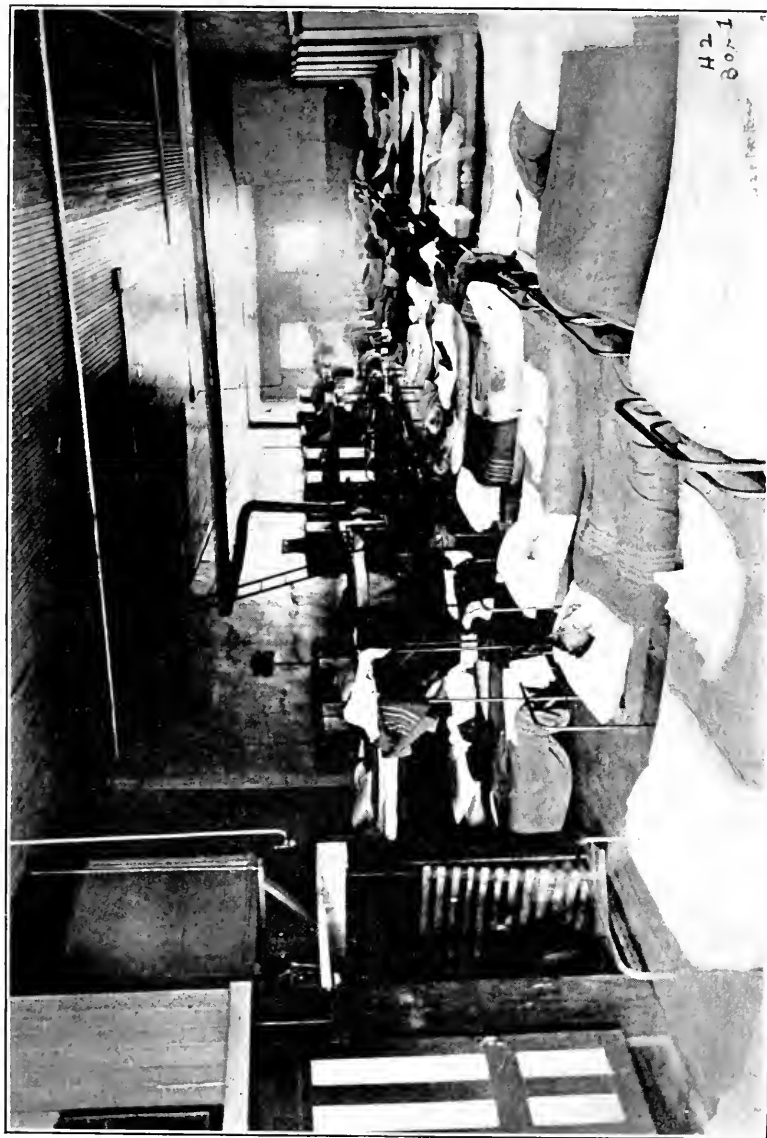




ILLUSTRATING THE CELL TYPE OF LODGING-HOUSE.

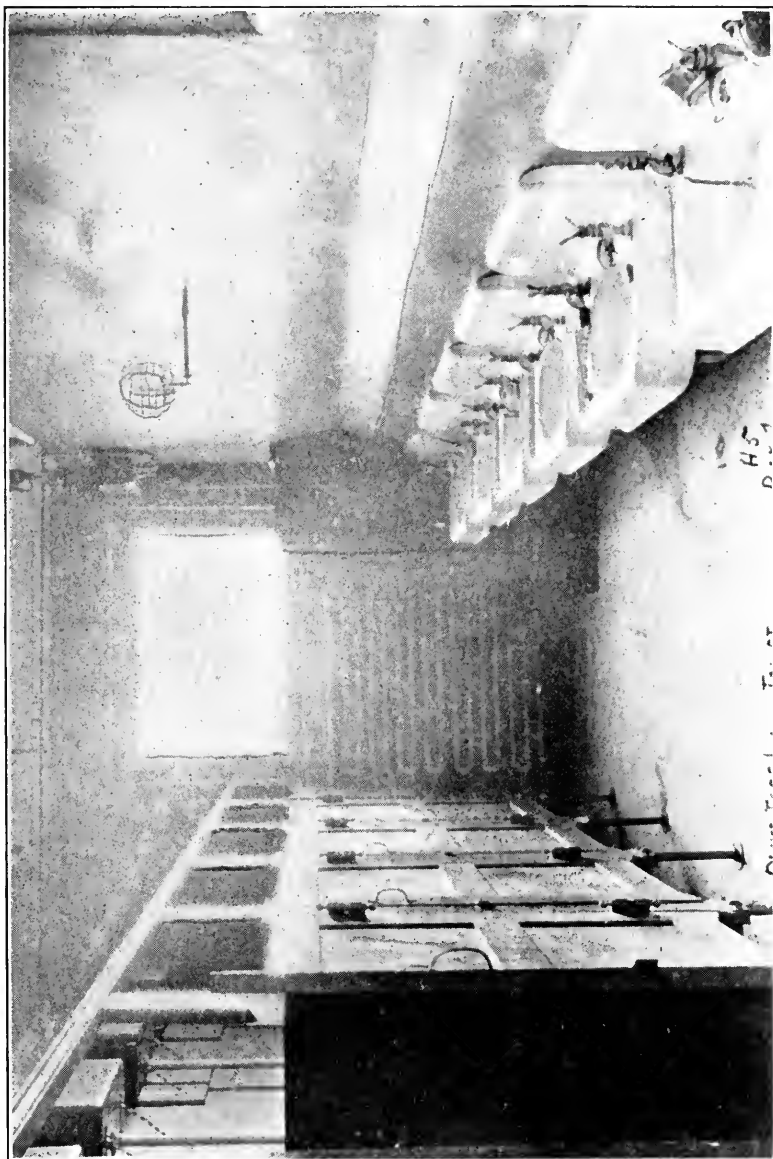
The skylight and roof, and front windows in main room depended on for ventilation.





A CLASS OF CHEAP LODGING-HOUSE, SHOWING CROWDED CONDITION OF DORMITORY
AND POOR VENTILATION.





THIS PICTURE GIVES A VIEW OF THE TOILET ACCOMMODATIONS PROVIDED IN THIS CLASS OF LODGING-HOUSES.

This room is separate and apart from the dormitory and is fitted up so as to prevent saturation of walls and floors by being thus constructed of non-absorbent material.



The floors of the apartments are usually cemented and graded to a drain, the cement running up and flashing the side walls for several inches. In some places the waterclosets receive very rough usage and are frequently out of repair. Obstructions occur and there is in many instances a man in attendance to keep them in order. The simplest and strongest kind of watercloset is best adapted for these places. One watercloset is required for every fifteen lodgers, and the requisite number is provided in each instance. Of course only a small proportion of these lodging-houses are in a condition such as to warrant criticism. Fully 75 per cent. of them are cleanly and well kept, and the proprietors only require a suggestion in the way of improvement in order to carry it out. The cheaper class of lodging-houses is almost what might be termed a necessary evil. Only by continuous endeavor are they kept in as reasonable a sanitary condition as the circumstances will allow.

RAINES' LAW HOTELS.

There is a class of habitations known as Raines' Law Hotels, which are, to all intent and purposes, lodging-houses. These places have Raines' Law licenses and furnish the necessary 10 rooms properly equipped, but in a large number of cases, beyond these rooms dormitories are maintained in addition where lodgers are accommodated just as in the regularly permitted lodging-houses. It was hoped that these places might be made to conform with the law either by being compelled to discontinue the use of the dormitories or by altering the buildings in accordance with the law relating to lodging-houses and securing permits from the Board of Health. With this object in view a large number of orders were issued requiring the use of these places as lodging-houses to be discontinued. Thus far we have been unable to enforce these orders, and, therefore, have been unable to secure the desired result.

SMOKE-HOUSES.

At the close of last year the nuisances from smoking chimneys were reduced to a minimum. The reason this was so was because on the failure of an offender to obey an order from the Board of Health he was immediately arrested. When it became known that drastic meas-

ures would be resorted to for a violation of the smoke ordinance, many who had been persistent violators saw the error of their ways and repented. It has been found that simply the serving of an order has very little effect in these cases, and that it is necessary in order to accomplish anything to follow up the order when it is ignored by sterner methods.

Smoking chimneys are gradually on the increase, especially along the east side of First avenue and west of Ninth avenue, and I would recommend that strong measures be taken to stop this character of nuisance now.

POULTRY SLAUGHTER-HOUSES.

This is a class of business which needs to be kept under constant surveillance. All of these establishments then in existence were last year thoroughly overhauled and put in good condition. Certain rules were required to be observed in the conduct of the business. The character of the improvements that were made rendered it almost impossible for them to degenerate to their former condition, but, some of the proprietors were inclined to be careless and indifferent, and these cases were reported. The only effective method of dealing with those who persisted in disregarding the rules of the Board of Health is to revoke their permit.

One such case occurred during the year, and, after having been warned by the President not to repeat his offense, he continued to do so. It was recommended that his permit be revoked. This was not done and as a result his respect for the requirements of the Department was very greatly weakened. It is advisable that the people who conduct this kind of business should be made to understand that these places must be kept in the best possible sanitary condition.

SLAUGHTER-HOUSES.

I am very glad to say that these establishments have been generally improved in their condition during the past year, and that alterations are now under way which will still further improve them. Old methods of treating by-products are being substituted by more modern methods,

and the old nuisances connected with the rendering processes are becoming a thing of the past.

It is remarkable in view of the fact that although between two and three millions of animals are slaughtered in the City, and the fat and offal resulting from the conduct of the business is disposed of, no complaints are made from the neighborhood of these establishments of any disagreeable or offensive odors.

It might be of interest to note the improvements that have recently been made in these establishments.

An entirely new plant has been completed on the East Side this year by Swift & Company. This plant takes the place of the old one at the foot of West Thirty-ninth street, so that one old plant is abandoned as a slaughter-house and rendering place. In the new plant there will be no rendering, the by-products are handled by the United Dressed Beef Company, across the street from Swift & Company. The material to be treated is not taken from one place to the other through the street but through a tunnel beneath Forty-fourth street, connecting both establishments. The United Dressed Beef Company, at the corner of Forty-fourth street and First avenue, are now engaged in erecting a new building in which modern machinery for the treating of blood and fat is to be installed. As soon as this is finished the old plant will be abolished. The new plant will be in operation before the warm weather comes.

The New York Butchers' Dressed Beef Company are still at work on their new building at Fortieth street and Eleventh avenue. The building is so far progressed that the machinery is now in process of installation.

In the hog slaughter-houses all of the pens have been cemented where formerly the floors were of wood, and in almost all instances in all of the slaughtering establishments iron fences have replaced old wooden ones for enclosing the pens.

Changes for the betterment have been made in Joseph Stern & Son's place, the old gut-cleaning room in the rendering building has been abandoned and a new place fitted up in the basement of the slaughter-house. A new condensing apparatus has been constructed, and a num-

ber of old wooden separating tanks removed, resulting in a decided improvement.

To describe in detail all that has been done to improve these places would be tedious, suffice it to say that there is scarcely a plant that has not made repairs of a permanent character, and while some of the older places do not measure up to ideal conditions they are, nevertheless, conducted under as sanitary conditions as the circumstances will permit, and do not constitute a nuisance.

I would here call your attention to the fact that the importation of fat into the City of New York for rendering purposes is prohibited by the Sanitary Code. Heretofore it was allowable to bring what is known as edible fat into the city to be rendered when a permit was granted by the Board of Health. The Code as subsequently changed did not provide for a permit, but excluded such importations altogether. The last permits expired last spring, and at that time I called attention to the situation but nothing of a definite nature was done. The fat is still being brought into the city in the face of the fact that it is a violation of Section 95 of the Sanitary Code.

MERCANTILE ESTABLISHMENTS.

A regular and systematic inspection of these establishments is kept up for the purpose of determining if the Child Labor Law is observed. While violations are found here and there constantly, no widespread disregard of the law exists.

The season of the year when there is apt to be an increase in the number of violations is around the Christmas holidays. At this time these establishments need extra help and will, unless checked, employ children under the legal age, and those without certificates, and work them beyond the hours prescribed by the law. This year all of the larger stores were warned in advance that failure to observe the law would result in prosecution, and, as a result fewer violations were found than in any preceding year.

In the smaller stores where the number of the help is small, inspections were made as far as possible with the force at our command.

Both day and night inspections were made and where violations were discovered an immediate compliance with the law was demanded, and in no case was there a refusal to do so.

The same kind of supervision is exercised in connection with the boys employed in the messenger service.

The constant visitation of the inspectors at the places where children are employed has the effect of informing those who conduct these establishments of the nature of the law on the subject. There are very few, of any, who can plead ignorance of the law, and in those cases where repeated violations occur arrests should be made. The number of inspections of this class for the year amount to 15,145.

It is interesting to note the difference in the number of employment certificates granted and refused this year in comparison with last year. The favorable showing for this past year is due to the working of the amendments to the law which went into effect on October 1, 1903.

	1903.	1904.	
Number of applicants.....	29,367	30,357	
Number of certificates granted.....	13,336	8,600	4,736
Number of certificates refused.....	4,671	6,316	1,645
Total decrease.....			6,381

FOOD INSPECTIONS.

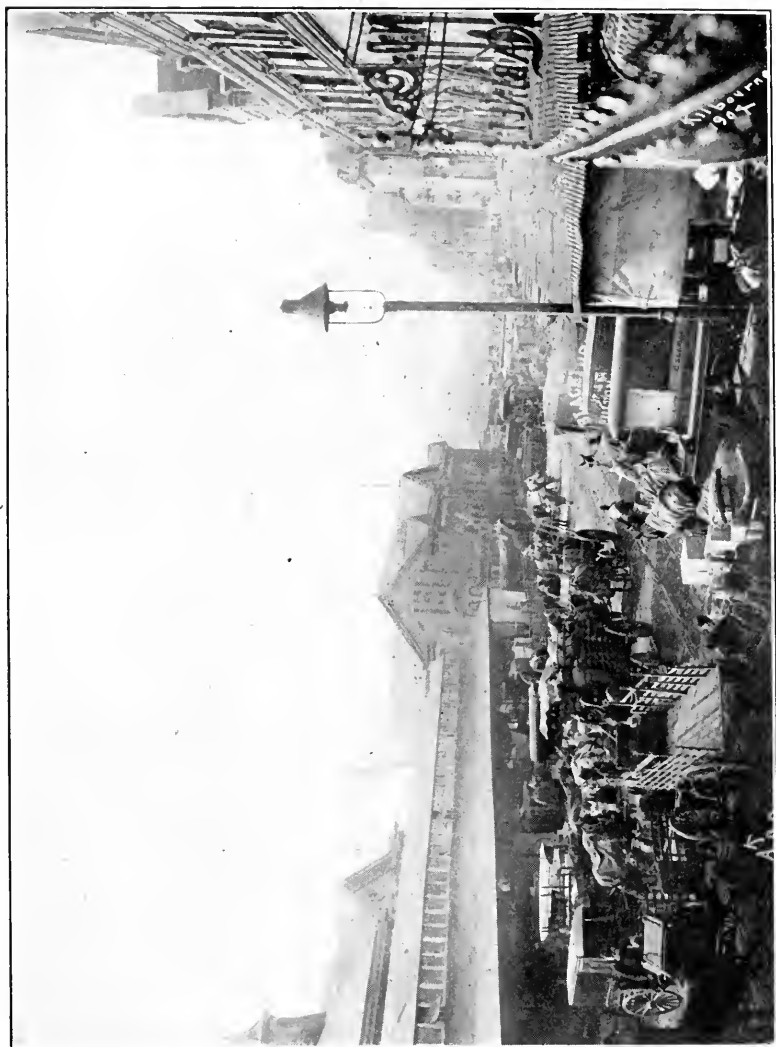
The force of Inspectors of Foods has been increased this year and are, therefore able to more thoroughly inspect food products and the places in which they are kept for sale.

There are 17 Inspectors of Food, seven detailed to the inspection of fruits and vegetables, six to the inspection of fish, and five to the inspection of meat. In the early summer Inspector B. C. Fuller was made a Supervising Inspector of Foods, and the inspectors of fruits, vegetables and fish were placed under his direction. The Borough has been divided into districts to which these men are assigned. Stores, markets, stalls and stands, in fact all places where food-stuffs are stored or kept for sale are constantly being inspected.

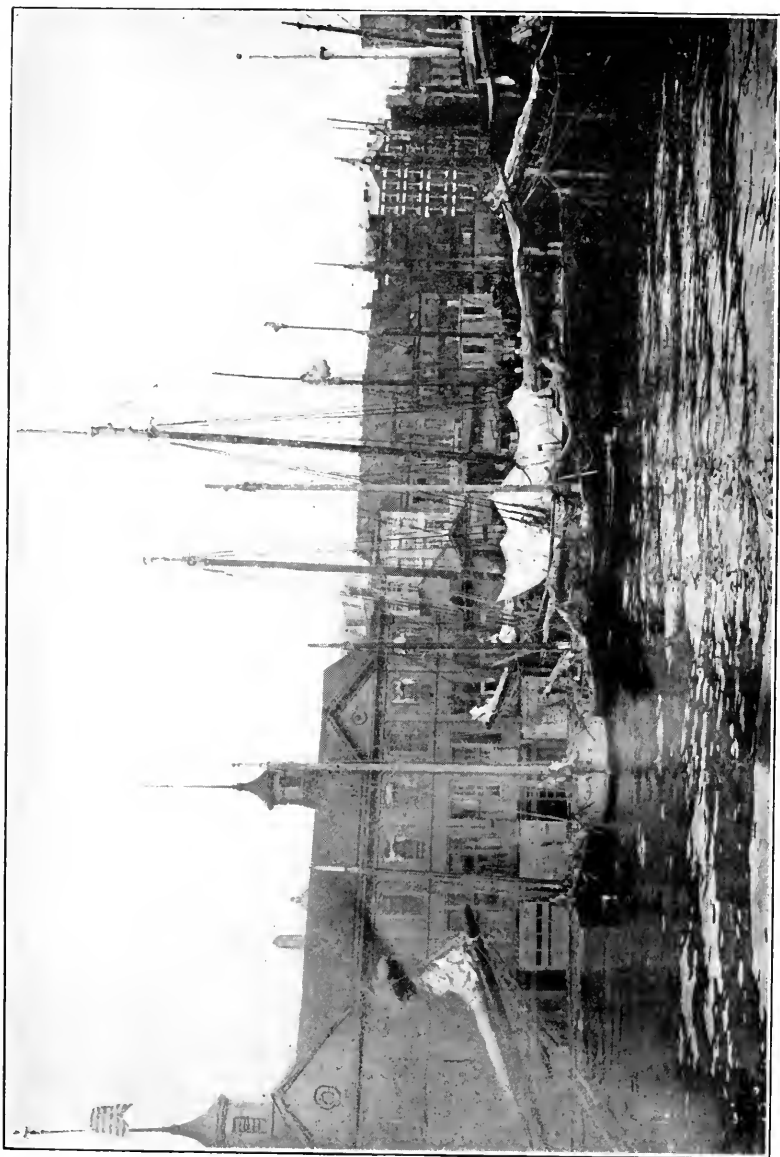
FISH.

There are two points where special attention is necessary in the inspection of fish; one at Fulton Market where the business is wholesale, and the other at the peddlers' market under the Williamsburg Bridge. The busiest days of the week in Fulton Market are Wednesdays, Thursdays and Fridays. Practically all the fish for consumption in the city is shipped through this market, and a proper supervision at this point prevents largely fish unfit for food entering the retail markets. The perishable character of this food necessitates following it up as it passes through the hands of the retailer. Especially is this so in warm weather. Fish may leave the wholesale market in an acceptable condition, but if kept for a day or two under unfavorable conditions rapidly decomposes.

Some trouble has been experienced in Fulton Market due to the dealers encroaching upon the sidewalk with their business and exposing the fish for sale outside the stoop-line. This practice results from the fact that the accommodations in the present market are inadequate for the conduct of the immense business carried on there. In other words, the business has outgrown the capacity of the present market, and to insist upon a strict fulfilment of the letter of the law against exposure would result in driving many firms out of business. When the new market, which is contemplated, is built, it is the intention to vacate the present quarters, and, as the building will remain under the control of the Fish Dealers' Association, they will not permit the premises to be used again for the fish business. All fish dealers of this association will be housed in the new building, which will be equipped so as to enable those occupying it to comply with all the requirements of the law. The following photos show the wholesale fish district in and about Fulton Market. These pictures were taken on the busiest day of the week and represent the crowded condition, and the inadequate space for the proper conduct of the business. It will be noticed how, in most cases, the sidewalks are encroached upon by reason of the limited space within the stores.



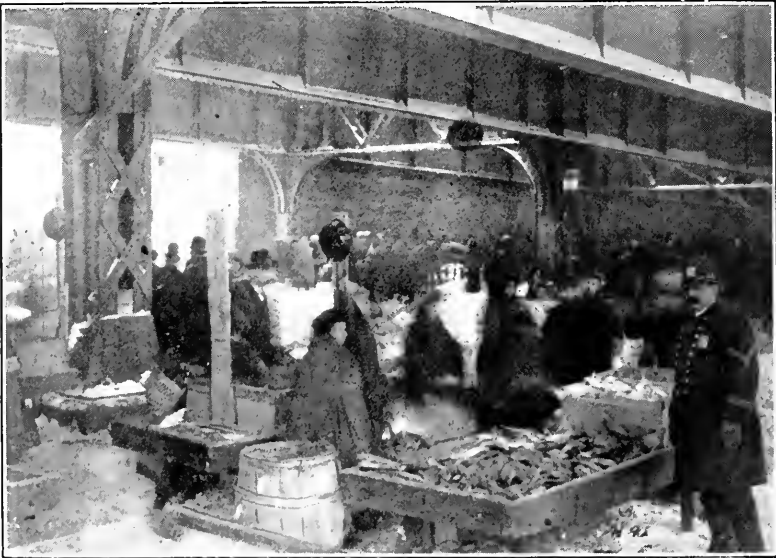






Since the push-cart peddlers have been driven from the streets and located under the Williamsburg Bridge a number of important changes for the better have been noticed. Not only have the streets been relieved from the filth that necessarily accompanied the carrying on of the trade, but the move has resulted in concentrating this industry within specified limits, where heretofore it was scattered over a large territory. This, of course, makes it much easier to handle. Then instead of each peddler owning his own stand, one man owns all and rents them out to the individual each week. This results in a uniformity of stand, an improved stand and better care in the matter of cleanliness. It is also noted that the quality of the fish offered for sale has vastly improved. The stand-keepers are disciplined by having the privilege of selling in the market taken away for varying lengths of time if they violate any of the rules laid down for their government. The establishment of this market has resulted in a vast improvement. It would be better if all push-cart peddlers who sell food-stuffs could be segregated and limited to prescribed areas properly fitted up to meet the requirements of the situation.

The following photos show the fish stands under the new Williamsburg Bridge:



FRUIT AND VEGETABLES.

A similar arrangement to that employed in the inspection of fish is used in the inspection of fruit and vegetables; the wholesale markets are kept well supervised and all food-stuffs passing through them are

scrutinized before finding their way into the retail markets. Thousands of pounds of unwholesome material is condemned annually at these points alone. Among the push-carts on the lower and upper east-sides and in the Harlem Market two men are situated who make their daily rounds, confiscating goods of the character that are found unfit for food. Among the push-carts the chief difficulty lies in preventing exposure of goods liable to be contaminated by the dust from the street. The result is not so serious in connection with food that must be cooked before eating, but in the case of confectionery and bread-stuffs it is important that these should be properly protected. Repeated arrests and fines, or the confiscation of their goods seem to have but little effect upon those engaged in this trade. As soon as the inspector's back is turned they will return to their old practices. The venders of these goods do not appreciate the object in view, and the majority of them seem to regard the enforcement of the rule as a hardship and without any particular merit. One of these men will furnish his cart with the necessary glass cover and then stationing himself on a corner of the street will raise the cover and support it on props to expose his wares. His one object seems to be to elude the vigilance of the inspector and thus be able to disregard the law. The more I see of this character of business the more I am impressed with the idea that an ordinance should be passed prohibiting the sale of this class of goods in push-carts on the public streets.

Besides the work indicated these inspectors are engaged in collecting samples of various kinds of goods for chemical analysis, such as canned goods, preserves, relishes and drugs of various descriptions. Several times a year all brands of condensed milk are analyzed to determine if the proper standard is maintained, and in other classes of goods for adulteration or substitution.

There is a large field for action here, but unless some positive measures are taken where adulterations are discovered no real good results from this line of investigation. The people who deal in this kind of goods are indifferent whether their stock is analyzed or not if the result is neither exposure nor punishment.

I herewith submit a report made by Bayard C. Fuller, Supervising Inspector of Foods, relating to the work done under his immediate supervision.

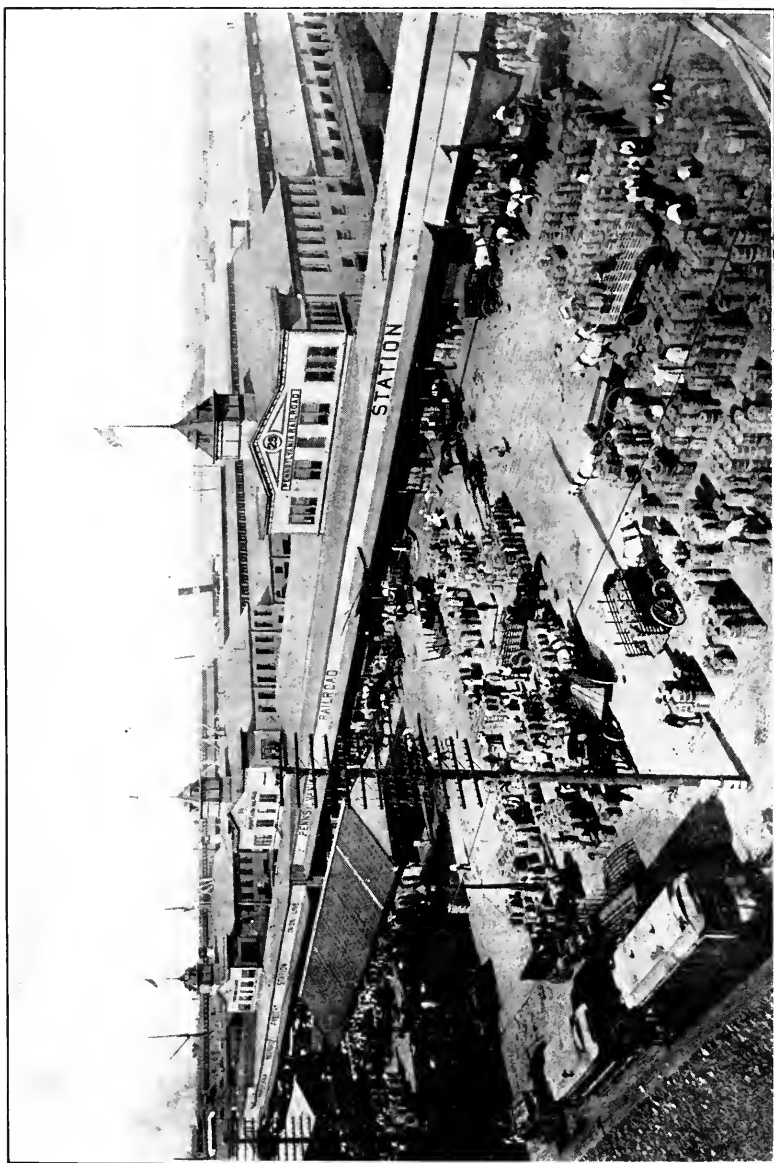
"To the Chief Sanitary Inspector:

SIR—I have the honor to submit the following report as to the character and method of work performed under my supervision for the year 1904.

Under my immediate jurisdiction there are eleven Inspectors of Foods who carefully look after all food products other than liquid milk and fresh meat. Every known article of food consumption is systematically inspected for physical conditions, and in cases where examinations of that kind is impossible, samples are taken and delivered to the laboratory for analysis. The inspectors are assigned to work best fitted to their experience and each has a district which is carefully covered. Every four weeks (about) they rotate, so they will become familiar with the system as a whole.

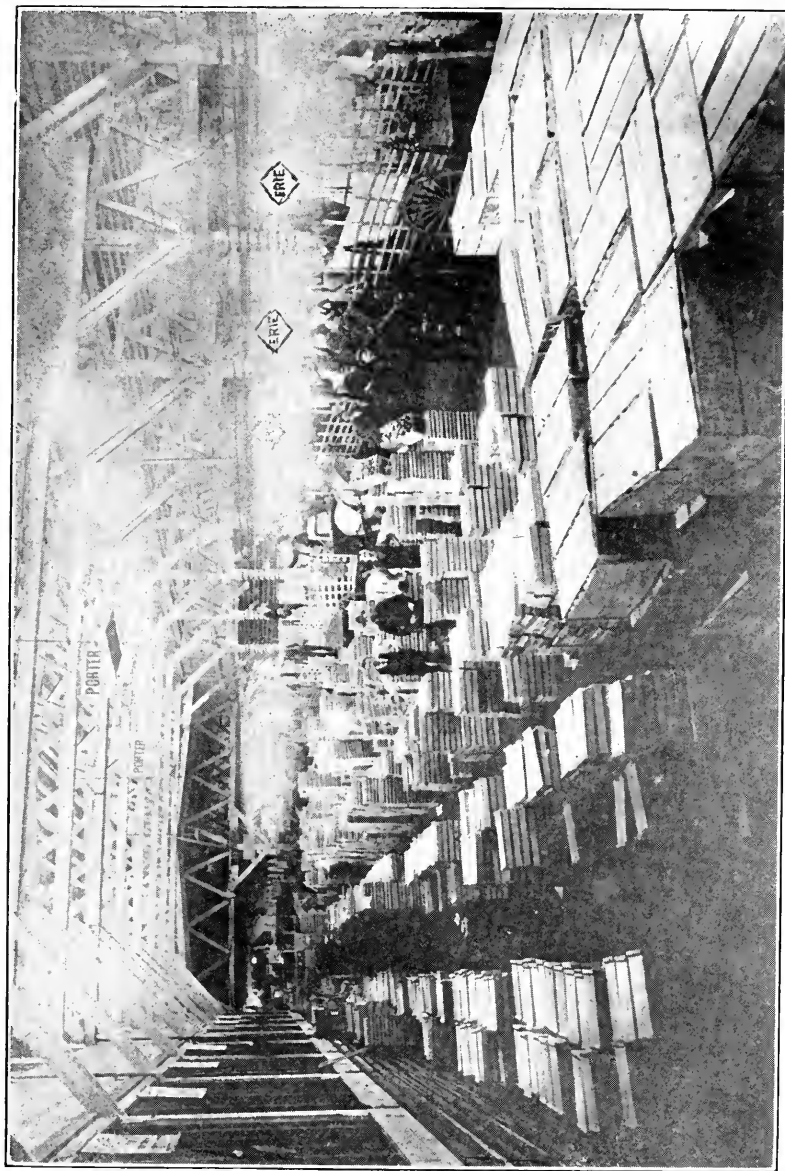
My supervision of their work is generally from the field. I find better results emanate in that way. Fruits dried and green, vegetables, all kinds of canned goods, coloring matter used by confectioners, adulterations in every form, teas, coffees, spices and fresh fish constitute the major portion of the work. The secondary work is making daily inspection of all stores, stands and markets from a sanitary point of view.

Fruit is the largest industry in the city and necessitates care and judicious management. Inspectors, during the season, are out early in the morning along the wharves and markets carefully watching to see that no product is permitted to leave a given point if in bad condition. Cargoes and railroad yards are constantly under surveillance, and in order to keep the latter in good sanitary condition incessant vigilance is necessary. At times when receipts are less, such as winter, special attention is paid to grocery, fish and delicatessen stores, and it is surprising to know the wonderful effects produced from the issuing of department orders. Below are illustrations of the wholesale fruit markets. Here is shown the Erie Dock where California fruit is received. These pictures, taken in the winter, do not adequately represent the vast volume of business done at this point in the warmer weather. But here, as at neighboring points, vast quantities of this class of goods are received throughout the year, and come under the careful inspection of the Inspectors of Foods.



PENNSYLVANIA DOCK AND SECTION OF WEST STREET IN FRONT, KNOWN AS THE "FARM," WHERE EXCESS GOODS ARE TEMPORARILY STORED.





AN ILLUSTRATION OF THE MANNER IN WHICH FRUITS ARE EXHIBITED ON THE DOCKS FOR SALE.

This is a photo of the Erie Dock.



Fulton Fish Market has been for many years the "*bete noir*" of the Department; the streets surrounding it have been littered with slimy fish, boxes and barrels, making the conditions for citizens quite intolerable. This situation has become partly solved by the use of drastic measures; the President of the Wholesale Fish Dealers' Association was arrested and held for trial; he desired making a test case. Later, he changed his mind and with a delegation of fish dealers he visited the Department and thrashed the subject thoroughly with the result that rules and regulations were given to him for distribution throughout the trade.

I am happy to say improvement is beginning to show, slowly but surely, and in a short time, with vigilance and delicate but firm handling this extraordinary nuisance will have been fully abated.

Another important work reduced to a minimum is the handling of foods (from hand to mouth) by push-carts and stands, such as confectionery, figs, dates, candied-apples, etc. All peddlers have been repeatedly warned to have their merchandise covered, to protect same from dust and dirt. The district known as "The East Side" has always been the worst, but numerous arrests and confiscation of goods has had a salutary effect. Another and very important feature of the work is keeping the railroad yards clean; on the west side river front from Twenty-third to Thirty-fourth streets there are many railroad yards, principally that of the New York Central, where carloads of produce of all kinds arrive in great quantities, for many years this has been a veritable garbage plant, and it has required great ingenuity and delicate handling to bring it up to the present state of efficiency.

Condensed milk is a subject that is very carefully guarded; every four or six weeks samples of every known brand sold in this market is brought to the Department for analysis, and I am free to say the standard maintained by this city for purity is far greater than any city on this continent.

Samples of confectionery from all large and small wholesalers are, with regularity, brought to the laboratory to determine adulterations, and it is so also of all kinds of canned goods, syrups, jellies, spices and manufacturers of mineral waters are visited regularly, and from time to time the formula used is obtained and placed on file in the office.

There is no food product that is not carefully watched, and I am sure you will concur with me when I make the statement that since the advent of the present system the benefits to the Department have been greatly enhanced and materially advanced.

Respectfully submitted,

BAYARD C. FULLER,
Supervising Inspector of Foods.

MEAT.

There are five inspectors employed in the inspection of meat, poultry and game. Their duty is inspecting the meat in the slaughter-houses on the east and west sides of the city, and in the various ice-houses where Western shippers store their meat. One man is stationed in Washington, West Washington and Gansevoort markets, and another in the stockyards at Eleventh avenue and Sixtieth street. The latter inspects the live animals as they are delivered at the yards and notes any external evidence of diseased cattle. In addition to this there is a supervision of the retail shops of the same character as that employed in fish and fruit inspections. Every Saturday night "Paddy's" Market, on Ninth avenue, between Thirty-ninth and Forty-second streets, is visited by our inspectors and any unwholesome food offered for sale is seized and destroyed. They also see that the rules for properly protecting the goods are enforced. It will thus be seen that the ground is thoroughly covered and there is but little chance for deleterious food-stuffs escaping detection.

During the year there have been destroyed as unfit for human consumption 4,639,090 pounds of fruit; 771,100 pounds of vegetables; 238,240 pounds of groceries and canned goods; 19,895 pounds of confectioneries; 1,100,971 pounds of meat; 191,569 pounds of fish, and 211,482 pounds of poultry and game, a total of 7,172,347 pounds.

ARRESTS.

The number of arrests made for the year for violation of various sections of the Sanitary Code, and for non-compliance with orders

issued by the Board, amount to 2,475, and the amount of fines imposed as a result of these arrests is \$4,729.

That this is an effective method of dealing with obstinate cases is evidenced by the small number of orders remaining uncomplied with in comparison with those years when the same method was not employed, at least not to the same extent. Where in former times hundreds of uncomplied with orders were a legacy from one year to another, we come to the close of this year with no old orders except those directed against Raines' Law Hotels, which are used as lodging-houses, and to which reference has already been made.

Another result of this course of procedure is the more prompt abatement of nuisances, for those who have had an experience will realize the importance of immediate compliance when they receive subsequent similar notices.

SPITTING.

The enforcement of the ordinance against spitting in cars and public places has received considerable attention. A statement of the result of the efforts made in this direction up to date is as follows:

Number of arrests.....	1,384
Number fined.....	1,114
Number discharged.....	270
Total amount of fines.....	\$1,754

It is important that this line of work should be pushed as far as the force at the command of the Department can be used.

A detailed list of the number of arrests made for violations of the Sanitary Code, together with the amount of fines imposed is given below:

Section of Sanitary Code.	Number of Arrests.	Fined.	Sentence Suspended.	Discharged.	Cases Pending.	Total.	Amount of Fines.
12.....	1	1	..	..	..	1	\$5 00
42.....	12	10	..	2	..	12	53 00
45.....	119	98	2	18	..	119	360 00
46.....	598	564	..	34	..	598	1,307 00
53.....	2	1	..	..	1	2	50 00
56.....	5	..	1	3	1	5	.....
67.....	1	1	..	..	..	1	5 00
73.....	7	4	..	3	..	7	16 00
78.....	42	29	3	7	3	42	210 00
80.....	6	2	..	2	2	6	10 00
87.....	7	4	..	3	..	7	18 00
96.....	3	..	..	3	..	3	.....
97.....	37	17	5	12	3	37	102 00
100.....	1	..	1	..	..	1	.....
101.....	3	2	1	..	..	3	.....
102.....	1	1	..	..	..	1	25 00
107.....	1	..	..	1	..	1	.....
109.....	60	59	..	1	..	60	194 00
118.....	47	39	3	5	..	47	312 00
119.....	61	50	6	5	..	61	302 00
121.....	3	2	..	1	..	3	10 00
122.....	1	..	..	1	..	1	.....
137.....	1	..	..	1	..	1	.....
178.....	1,384	1,114	..	270	..	1,384	1,754 00
180.....	1	..	1	..	..	1	.....
Violation Corporation Ordinance.....	2	2	..	..	..	2	20 00
385 Penal Code	3	2	..	1	..	3	7 00
Disorderly conduct	60	7	..	53	..	60	12 00
1262 of Charter.....	3	..	..	3	..	3	.....
1265 of Charter.....	1	..	1	..	..	1	.....
1337 of Charter.....	1	..	..	1	..	1	.....
3841 Child Labor Law	1	..	..	1	..	1	.....
Total.....	2,475	2,009	24	431	11	2,475	\$4,729 00

Classified List of the Number of Permits Issued during the Year 1904.

	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Total.
To cart manure	546	77	89	376	1,088
To cart swill.....	62	....	....	25	87
To cart fat and bones.....	185	4	4	114	307
To cart garbage.....	31	6	....	14	51
To lead cows.....	389	589	581	538	2,097
To sell milk.....	466	716	1,028	571	2,781
To use smoke-house.....	....	....	3	3	6
Scavenger	8	7	2	2	19
To manufacture carbonated water.....	1	5	10	28	44
Miscellaneous	553	77	232	276	1,138
Total.....	2,241	1,476	1,949	1,947	7,613

Respectfully submitted,

HARRY E. BRAMLEY,
Chief Sanitary Inspector.

OFFICE OF THE DIVISION OF CONTAGIOUS DISEASES, }
 BOROUGH OF MANHATTAN. }
 NEW YORK, December 31, 1904. }

To the Assistant Sanitary Superintendent:

SIR—I have the honor to submit the following report of the work performed by the Division of Contagious Diseases for the year 1904.

The work of this Division is largely routine and consists of the following:

1. District Medical Inspection.—For the purpose of maintaining isolation in cases of contagious disease, and ordering and supervising disinfection after such cases are terminated.

2. Medical Inspection of Schools.—For the purpose of maintaining a practical supervision over the cases of minor contagious diseases in the schools.

3. District Nursing.—For the purpose of aiding in the care of cases of contagious diseases among the extremely poor.

4. School Nursing.—For the purpose of treating certain minor contagious diseases in the schools, and instructing families in general hygiene, etc.

5. Vaccinating.

6. Summer Corps.—For the purpose of instructing mothers in the care and feeding of infants during the summer months.

7. Diagnosis of Contagious Disease.

8. Disinfection.

9. Diagnosis and Destruction of Glandered Horses.

10. Supervision of Day Nurseries and Institutions.—The force of this Division consists of:

Chief Medical Inspector.

Assistant Chief Medical Inspector.

Medical Inspectors (Diagnosticians).

District Medical Inspectors.

Medical Inspectors (Vaccinators).

Medical Inspectors (Oculists).

Medical Inspectors of Schools.

Medical Inspectors (Summer Corps).

Trained Nurses (District and School).

Disinfectors.

Veterinarians.

DISTRICT MEDICAL INSPECTION.

During the year the supervision and control of cases of typhoid fever and cerebro-spinal meningitis has been transferred to the Division of Communicable Diseases. The diseases under the supervision of this Division are as follows: Smallpox, scarlet fever, diphtheria and croup, measles, varicella, pertussis, parotiditis, erysipelas, German measles and glanders.

The following are the comparative figures for these diseases for the years 1901, 1902, 1903 and 1904:

<i>Borough of Manhattan.</i>	1901.	1902.	1903.	1904.
Smallpox	1,198	755	30	41
Scarlet Fever.....	10,113	6,895	6,705	7,747
Diphtheria and Croup.....	6,774	9,679	10,569	11,016
Measles	7,592	11,645	7,283	17,838
Varicella	2,036	2,165	2,548	2,124
Pertussis	108	206	538	585
Parotiditis	50	58	754	622
Erysipelas	33	26	44	196
German Measles.....	....	....	....	1,075
Glanders .....	....	....	1	1

These figures show a great increase in the amount of work performed during 1904 as compared with 1903.

The marked decrease in the number of cases of smallpox during the past two years is an important feature. Undoubtedly this decrease is, to a great extent, due to the large number of vaccinations performed by the Department during the past four years. A comparative table of the number of cases of smallpox occurring during the years 1901, 1902, 1903 and 1904, with the number of vaccinations performed during these years, follows:

	Small-pox.	Vaccinations.
1901	1,198	225,934
1902	755	555,984
1903	24	163,741
1904	41	200,223

Work Performed by Medical Inspectors During the Year 1904.

Number of visits to cases.....	133,368
Number of visits to tenement-houses.....	105,868
Number of visits to hotels.....	370
Number of visits to schools.....	169
Number of visits to private houses.....	5,287
Number of visits, not found.....	1,085
Number of visits, miscellaneous.....	2,949
	<hr/>
Total number of visits.....	115,728
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The immediate supervision of the work of Medical Inspection of Schools, District Nursing, School Nursing, Vaccinating and Summer Corps, is under the control of the Assistant Chief Medical Inspector. His special report is attached hereto.

To the Chief Medical Inspector:

SIR—I have the honor to submit the following report of work performed in the Medical Inspection of Schools, Department Eye Hospitals, District and School Nursing, Vaccinating and Summer Corps for the year 1904.

MEDICAL INSPECTION OF SCHOOLS.

With few slight modifications, the work is being carried out along the same lines as during the two preceding years. The procedure, in brief, is as follows:

The Medical Inspectors assigned to this work have each from three to five schools under their immediate charge. Each school is visited each morning between nine and ten o'clock, and all children complaining of, or objectively suffering from, any illness whatsoever are examined by the Inspector for evidence of any infectious or contagious disease. Once each week the Inspector goes through each school and examines every child. All children affected with any actively contagious disease, such as scarlet fever, diphtheria, measles, chickenpox, whooping cough or mumps, are immediately excluded from school attendance, and are not allowed to return to school until all evidence of contagion has disappeared. Cultures are made in all inflammatory conditions of

the throat and nasal passages. Minor infectious or contagious diseases, such as inflammatory conditions of the eyes or eyelids, skin eruptions and parasitic affections of the head or body, are referred to the family physician or school nurse for treatment. These cases are allowed to remain in school as long as they show evidence of treatment. They are under the immediate supervision of the Medical Inspector and are repeatedly examined for evidence of treatment and degree of contagion. Records of all children excluded, readmitted or ordered under treatment are kept in the school, as well as placed on file in the Central Office at the Department. Any failure to observe the regulations on the part of the pupil is followed by exclusion from school attendance. As a result of this procedure the number of exclusions are much more limited than formerly.

On November 27, 1904, the Department instituted the systematic testing of the vision of all children in the schools. Simple tests were employed, in order to ascertain the presence of impaired vision or errors of refraction. The following card was made out for each pupil examined, and kept on file for reference:

19 OPTHALMIC RECORD			Class { Grammar Primary
Name	Age	Vision { O. D. O. S.	
2d Exam.	19 { Under treatment Not under treatment	Symptoms { Headaches Squint Blepharitis Blepharospasm Chronic Conjunct. Blurring of vision N. P. displaced	
Cornea { Central opacities { O. D. No central opacities { O. S.			
3d Exam.	19 { Under treatment Not under treatment		

If any defect was discovered the following card was filled out and given to the child to take home to its parents:

101-1904	2975, '04. 20,000 (P)
THIS CARD DOES NOT EXCLUDE THE PUPIL FROM SCHOOL	
DEPARTMENT OF HEALTH THE CITY OF NEW YORK	
.....19.....	
<p>The parent or guardian of</p> <p>is respectfully informed that an examination of this pupil's eyes shows that vision is defective. A further examination is necessary, in order to determine whether or not glasses should be worn. It is therefore recommended that be sent to an oculist or to one of the eye hospitals or dispensaries.</p>	

Report of Vision Testing From November 27, 1904, to January 1, 1905.

Number of children's vision tested.....	12,067
Number found defective.....	3,441

Table Showing Amount and Character of Work Performed by the Medical Inspectors of Schools, for Year 1904.

	Visits to Schools.	No. Children Examined.	No. Children Excluded.
Public schools.....	40,399	7,082,401	11,245
Parochial schools.....	7,194	766,354	451
Industrial schools—			
American Female Guardian Society	996	103,382	160
Children's Aid Society.....	2,205	222,687	311
Kindergarten schools.....	4,001	78,784	116
Private schools.....	293	8,125	6
Total	55,088	8,261,733	12,289

Diseases for Which Children Were Excluded.

Schools.	Diphtheria.	Scarlet Fever.	Measles.	Smallpox.	Chickenpox.	Contagious Eye Diseases.	Contagious Skin Diseases.	Pediculosis.	Whooping Cough.	Mumps	Miscellaneous.	Totals.
Public	98	31	622	..	353	5,903	204	3,098	87	319	530	11,245
Parochial.....	1	..	19	..	18	277	12	116	1	5	2	451
Industrial. { A. F. G. S. ....	..	..	11	..	4	74	14	49	3	2	3	160
{ C. A. S.	6	3	11	..	7	162	11	74	4	20	13	311
Kindergarten	8	3	14	..	18	22	12	27	2	4	6	116
Private .....	..	..	..	..	..	1	..	1	..	1	3	6
Total.....	113	37	677	..	400	6,439	253	3,365	97	351	557	12,289

The Inspectors visit at their homes all children who have been absent from school, without adequate excuse, for five or more days. As a result, many cases of unreported contagious diseases are discovered and, as the following table will show, this is a most important branch of this work:

Cases of Unreported Contagious Diseases Found in Homes of School Children by Medical Inspectors of Schools.

Measles	485
Diphtheria	7
Scarlet Fever.....	57
Whooping Cough.....	35
Mumps	45
Chickenpox	103
German Measles.....	128
Typhoid Fever.....	1
Total.....	861

DISTRICT AND SCHOOL NURSING.

School Nursing.

This work is in charge of a Supervising Nurse, Miss Lina L. Rogers. Each nurse is assigned to a group of four or five schools, spending an hour in each every day. Children sent to her by the Medical Inspector are treated in the school during this time, they are principally those afflicted with various skin diseases, contagious eye diseases (except trachoma) and pediculosis. When the work is finished in the school, visits are made to the homes of the children, to instruct the parents in carrying out treatment already begun or to get the excluded children put under treatment at once, so that they may return to school.

District Nursing.


Nurses are sent to care for patients ill with a contagious disease whenever, in the opinion of the Medical Inspector, such care is essential and would otherwise be neglected. Repeated visits are made, hygienic measures carried out and isolation maintained.

Work Performed by District and School Nurses for the Year 1904.

Number of treatments for pediculosis.....	381,995
Number of treatments for contagious eye disease.....	95,799
Number of treatments for scabies.....	938
Number of treatments for ringworm.....	14,879
Number of treatments for impetigo.....	244
Number of treatments for favus.....	279
Number of treatments for measles.....	64
Number of treatments for scarlet fever.....	605
Number of treatments for diphtheria.....	109
Number of treatments for miscellaneous diseases.....	20,593
	<hr/>
Total number of treatments.....	515,505
	<hr/>
Number of visits to tenements.....	19,524
Number of visits to schools.....	16,155
Number of visits, miscellaneous.....	607
	<hr/>
Total number of visits.....	36,286
	<hr/>

Summer Corps.

The work of the Summer Corps covered the three months from June 20 to September 10. The tenement districts of the city were thoroughly canvassed, and in every instance where a child of one year of age, or less, was found the mother received from the Inspector detailed verbal and printed instructions for the proper care of the baby, with special reference to proper feeding and prophylaxis of gastrointestinal diseases. The following card was filled out for each case seen:

Name.....		Age.....		Address.....	
Nationality.....		No. in Family.....		Adults..... Children.....	
No. of Rooms.....		Air Space.....		Sanitary Condition.....	
Date of Birth.....		Place of Birth.....			
Attendant at Birth.....		Residence.....			
Nutrition.....		Digestion.....		Bowels.....	
Ill.....		Well.....		Vaccinated.....	
Nursed.....		Months, Intervals.....			
Artificial Feeding.....		Months, Intervals.....			
Milk.....		Bottled Loose Sterilized Condensed		Solid Food..... Fruit.....	
Inspected.....		190			
1769, '04, 25,000 (P)				<i>Medical Inspector.</i> 85 J-1904	

Nurses visited all cases of sick children to whom they were referred by the Medical Inspector. They instructed the mother in the proper preparation of food for the baby; cleanliness was urged, and, where necessary, the nurses gave baths. Ventilation and fresh air were encouraged and tickets for the Guild boats, as well as ice and milk tickets, were distributed.

90 J--1904		20-234, '04, 10,000 (P)
Name	Age	Residence

Date 1st Visit	_____	
Condition of Child	_____	
Treatment	_____	

Date 2d Visit	_____	
Condition of Child	_____	
Treatment	_____	

○		District Nurse: _____

Date 3d Visit	_____	
Condition of Child	_____	
Treatment	_____	

Date 4th Visit	_____	
Condition of Child	_____	
Treatment	_____	

Date 5th Visit	_____	
Condition of Child	_____	
Treatment	_____	

Case Dismissed	Cur ○	Improved
Unimproved		Dead

*Report of Work Performed by the Summer Corps Inspectors and Nurses from
June 20 to September 10, 1904.*

	Inspectors.	Nurses.	Total.
Houses visited.....	21,362	6,467	27,829
Families visited.....	159,726	56,271	215,997
Miscellaneous visits.....	342	....	342
History cards completed.....	26,810	8,377	35,187
Sick treated.....	1,428	437	1,865
Diarrhoea	1,111	154	1,265
Dysentery	39	11	50
Respiratory	151	3	154
Contagious	33	261	294
Miscellaneous	94	8	102
Revisits	1,570	127	1,697
Circulars distributed.....	62,279	11,980	74,259
Guild tickets distributed.....	2,530	662	3,192
Ice tickets distributed.....	6	....	6
Milk tickets distributed.....	1,910	704	2,614
Milk inspections	1,816	....	1,816
Nuisances abated.....	430	140	570
Complaints forwarded.....	61	5	66
Other Doctors' patients.....	1,161	156	1,317
King's Daughters' notices.....	2	2	4
Children examined at pier of St. John's Guild	20,144	....	20,144

REPORT OF THE OPHTHALMOLOGICAL WORK OF THE DEPARTMENT OF
HEALTH FOR THE YEAR 1904.

To the Assistant Chief Medical Inspector:

SIR—I have the honor to submit the following report of the ophthalmological work of the Department for the year 1904:

The work of the Department after January 1, 1904, continued along the same lines pursued in 1903. Cases of trachoma occurring in public schools were excluded by the Medical School Inspectors until they placed themselves under treatment, and when treatment was discontinued before a cure had been effected the children were again excluded from school. In other words, children with trachoma were allowed to attend school so long as they were under treatment. The Department did not attempt to dictate the form of treatment which should be adopted. Any of the recognized modes of treating this disease was accepted. Children could either go to their own physician or to any eye hospital or dispensary. A dispensary card was taken as evidence that the child was under treatment, and in some dispensaries the physicians in attendance stamped the date of each visit upon the back of the card, thus enabling the School Inspector to assure himself that treatment was being carried out. Cases of acute catarrhal conjunctivitis were excluded from school until recovery was effected.

As in 1903, the Hospital for Contagious Eye Diseases, at the foot of Gouverneur street, established by the Department, continued to treat cases of trachoma and acute catarrhal conjunctivitis by operative and non-operative measures. In April, however, the building of the new wing of Gouverneur Hospital necessitated the tearing down of the old building occupied by the Department of Health. A small temporary house was erected on Gouverneur Slip, in which the non-operative treatment of these diseases was continued. Operations, however, ceased at this date.

For many reasons the Department has been unable to obtain larger permanent quarters on the lower east side, so that it has been decided to retain the temporary house at Gouverneur Slip and to enlarge it by

adding another portable house to it, the latter to be used as a waiting room for children. This will not allow of operative procedures; only non-operative treatment can be employed. Cases for operation will be referred to the new Trachoma Hospital in One Hundred and Eighteenth street.

In the beginning of the year the Inspectors of the Schools on the upper east side reported that cases of trachoma were very numerous in that part of the city. It was, of course, impossible for these cases to apply for treatment at Gouverneur Hospital; the distance was too great and the expense of carfare for repeated visits became a vital item with some of the poor patients, so that it was decided to open a second hospital in this locality, and in March a private house, which had been altered and properly furnished, was opened for this purpose at One Hundred and Eighteenth street and Pleasant avenue.

During the past summer some tests were made in the vacation schools to determine, as had been done in the previous summer, the percentage of cases of defective visions among the school children. Some 3,000 were examined, which, when added to about 3,000 examined the previous summer, showed that of this number about 30 per cent. did not have perfect vision in one or both eyes. This subject has now received the Department's attention. The Inspectors in schools test the vision of each child and also investigate for symptoms of asthenopia. All cases presenting symptoms, or in whom vision is defective, are given a card to take to their parents, advising that a further examination be made. At the same time a card is filed away in the class room stating the reason for the advice given. It is expected that this will result in great benefit to school children of the city, that many actual eye diseases will thus be detected and rectified when possible, and that by the early detection of cases of hypermetropia a number of cases of myopia, produced by straining of the accommodation, will ultimately be diminished in this city. This seems to have been the experience in Philadelphia.

*Work Performed at the Department Eye Hospitals in 1904.
Trachoma Cases.*

	Gouverneur.	118th St.	Total.
Number of cases treated by operation.....	559	1,170	1,729
Number of cases treated without operation....	4,118	3,657	7,775
Total number of children treated.....	4,677	4,827	9,504
Number of visits made for subsequent treatment	89,859	32,769	122,628
Total number of treatments.....	94,536	37,596	132,132
Number of children not having trachoma, examined	1,544	271	1,815

Respectfully submitted,

H. W. WOOTTON,

Medical Inspector in Charge.

VACCINATION.

The following table shows the work performed by the vaccinators of the Department for the year 1904:

	Primary.	Revaccination.	Total.
Vaccinations in districts.....	9,707	132,564	142,271
Vaccinations in schools.....	65	27,772	27,837
Vaccinations in main office.....	3,769	14,602	18,371
Vaccinations in branch office.....	3,411	4,072	7,483
Vaccinations in Department Hospitals.....	....	4,261	4,261
Total vaccinations.....	16,952	183,271	200,223

Respectfully submitted,

J. J. CRONIN, M. D.,

Assistant Chief Medical Inspector.

DIAGNOSIS OF CONTAGIOUS DISEASE.

Medical Inspectors ranking as Diagnosticians are sent to all cases of contagious disease which are epidemic, for the purpose of verifying the diagnosis. They are required to diagnose all cases of contagious disease removed to the Department Hospitals, as well as to enforce removal to the Department Hospitals of all cases of contagious disease that persistently violate the rules of the Department concerning isolation. They also examine all patients for evidence of contagion previous to their discharge from Riverside Hospital.

The following is the amount and character of the work performed by the Diagnosticians for the year 1904:

Number of visits to cases.....	7,420
Number of visits to cases for special diagnosis.....	6,875
Number of visits to tenement-houses.....	4,083
Number of visits to hotels.....	153
Number of visits to schools.....	197
Number of visits to private houses.....	265
Number of visits, not found.....	58
Number of visits, miscellaneous.....	2,400
Total number of visits.....	7,156

DISINFECTION.

The following shows the work performed by the Disinfectors during the year:

Number of houses visited, disinfection performed.....	32,680
Number of houses visited, disinfection postponed.....	3,750
Number of rooms disinfected.....	56,973
Diphtheria	7,295
Scarlet Fever.....	5,873
Measles	11,937
Small-pox	48
Tuberculosis	4,223
Glanders	433
Miscellaneous	44
Total.....	29,853
Disinfections under supervision of Attending Physician.....	426

I herewith attach full report of the work performed by this Division during the year 1904:

Number of visits to cases of contagious diseases.....	140,788	
Number of cases visited for special diagnosis.....	6,875	
Number of visits to tenement-houses.....	180,766	
Number of visits to hotels.....	523	
Number of visits to schools.....	72,149	
Number of visits to private houses.....	5,552	
Number of visits, not found cases.....	1,024	
Number of visits, miscellaneous.....	12,292	
Number of visits.....		272,306
Number of primary vaccinations.....	16,952	
Number of revaccinations.....	183,271	
Total number of vaccinations.....	200,223	
Number of certificates of vaccination issued.....	28,453	
Number of persons removed to Contagious Disease Hospital	2,966	
Number of dead bodies removed to Morgue.....	66	
Number of houses visited for disinfection.....		36,430
Number of rooms disinfected.....	56,973	
Number of times ambulances, etc., disinfected.....	2,396	
Number of pieces of goods disinfected.....	72,429	
Number of pieces of goods destroyed.....	14,662	
Number of animals examined.....	21,722	
Number of cases of rabies found.....	1	
Number of horses tested with mallein.....	79	
Number of post mortems on animals.....	150	
Number of glandered horses condemned and destroyed...	460	
Number of inspections of stables.....		3,865
Total number of visits.....		312,601

Respectfully submitted,

A. BLAUVELT, M. D.,

Chief Medical Inspector.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 DIAGNOSIS LABORATORY. }
 NEW YORK, December 31, 1904. }

To the Assistant Sanitary Superintendent, Borough of Manhattan:

SIR—I have the honor to submit herewith the annual report of the Diagnosis Laboratory and Clinic for the Treatment of Communicable Pulmonary Diseases, for the year 1904:

The work now performed is as follows:

Antitoxin Administration,

Intubation,

Medical Inspection,

 Typhoid Fever,

 Tuberculosis,

 Pneumonia,

 Cerebro-spinal Meningitis,

Clinic, Treatment of Tuberculosis,

Admission of Patients to Riverside Sanatorium,

Diagnosis Laboratory,

 Examinations of cultures for diphtheria bacilli,

 Examinations of sputum for tubercle bacilli,

 Examinations of blood for Widal reaction,

 Examination of urine for Diazo reaction,

 Examination of blood for malarial organisms,

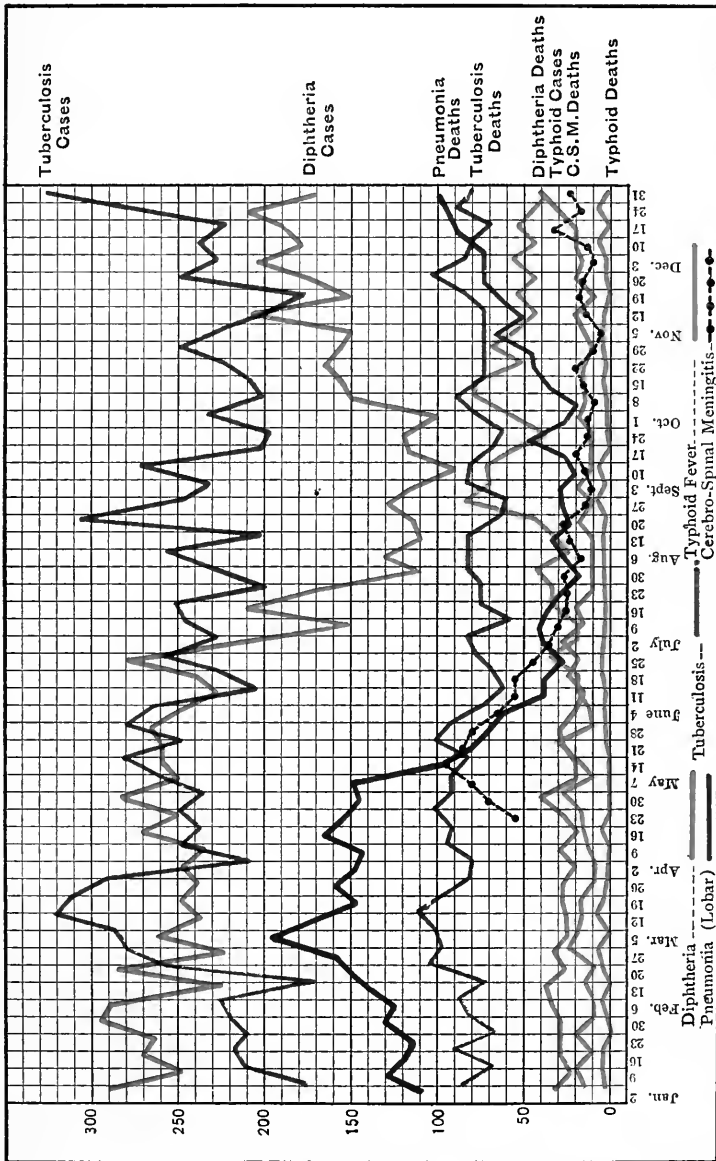
 Examination of smears for diplococcus intracellularis meningitidis,

 Examination of sputum for pneumococcus of Frankel.

Preparation of culture media and swabs, and other outfits for the various specimens collected.

Collection of specimens, for diagnosis, throughout the whole City of New York.

The medical inspection of typhoid fever and all work on pneumonia and cerebro-spinal meningitis is new work, having been assigned to this Division during this year.



As a whole the work of the Division has progressed satisfactorily; increase has taken place in almost all its branches, as will be seen in the table of statistics attached to this report.

Tuberculosis.

Owing to the opening of the Clinic for the treatment of Communicable Pulmonary Diseases, the work incident to the sanitary supervision of pulmonary tuberculosis in the Borough of Manhattan has greatly increased. The staff of inspectors has been increased from ten to twelve, besides which two additional inspectors do nothing else but tuberculosis inspections. The staff of district nurses has been increased from three to seven, and a further increase will shortly be necessary owing to the additional work in connection with the Tuberculosis Clinic. The tuberculosis office force has been increased to four, it being necessary for the Chief Clerk of the Division to devote a large part of his time to this work. As will be seen in the colored chart, the number of cases reported weekly have varied greatly, sharp rises occurring in March, August and December. The smallest number of cases was reported in November for the week ending November 19, 170. The highest number of deaths took place in the week ending March 12, 110; the lowest, June 11, 53.

The total number of new cases reported (10,815) was about the same as in 1903. The number of duplicates, however, was almost twice as great. No record was kept of the number of physicians' cases in 1903.

The number of deaths from tuberculosis was markedly increased, being 3,501 more than in 1903. This, of course, has tended to elevate the death rate, which was 24.6 per 10,000, as compared with 24.0 in 1903. The increased number of deaths was probably largely due to the great prevalence of pneumonia, and, to some extent, of influenza. The number of deaths of cases not reported during life is about the same as in preceding years.

The number of inspections in cases of tuberculosis was almost tripled, over 17,000 inspections being made by the nurses. The number of inspections made by inspectors is less than in 1903, owing to the fact that all cases living at home are now visited by nurses: inspectors only visit the premises vacated by a consumptive to order the necessary disin-

fection. The number of fumigations (now done entirely with formaldehyde) was tripled. In many instances the fumigation was done at the request of the owners before voluntary renovation.

The decrease in the number of renovations ordered from 1,338 in 1903 to 803 in 1904 is a most satisfactory indication of the increasing education of the owners and agents of premises occupied by consumptives, as to the necessity for renovation and disinfection of such premises when vacated by death or removal. No record was kept of these "voluntary renovations" during 1904, but it was very large. A record will, however, be kept during 1905; likewise of the number of "not found" cases.

The number of cases referred to charitable organizations has largely increased over 1903. Of the 381 cases, 223 were referred to the Charity Organization Society, 137 to the United Hebrew Charities, 20 to the Association for Improving the Condition of the Poor and 1 to the German Society. 416 cases were referred to hospitals during the year, twice as many as in 1903.

The entire system of registration of cases of tuberculosis has been re-organized, the general idea being to have a number of separate files ("At home and under observation," "Physician's cases not inspected," "Not found," "Dead," "Out of town," "Recovered," etc.), all centreing around the alphabetical name index. The work incident to making this change was very heavy, and it is not yet completed; but it will be by the first of March, 1905.

Two censuses of cases in institutions were taken during the year; one in March and one in September. Their object is to gain knowledge of the number of cases in institutions and incidentally to record any new cases. The following table shows the general results. No institution has increased its capacity, nor have any new ones been opened, except the New York Throat, Nose and Lung Hospital, on East Fifty-ninth street. With the exception of the Metropolitan Infirmary, all the institutions are full.

Table Showing Number of Cases of Tuberculosis in City Institutions.

	Jan., 1903.	May, 1903.	Oct., 1903.	Mar., 1904.	Sept., 1904.
Total cases.....	899	1,170	1,303	1,557	1,553
New cases.....	166	36	229	197	47
Duplicates	733	1,040	1,074	1,360	1,506

The decrease in the number of new (unreported) cases is very satisfactory, as showing that all the institutions are reporting properly.

During the Autumn letters were written to the attending physician of every private case of tuberculosis reported prior to March 1, 1902, asking for information as to: (1) The present address and condition of the patient; (2) If dead, the date of death; (3) if a Department inspector might visit the case to obtain the desired information. This will be done every year, thus following up all cases to within one year of the date of their report. The separate "private case" index will greatly facilitate the matter.

A record has been kept of the number of cases reported weekly by hospitals and dispensaries. When no report is received for two weeks, it has been obtained by telephone.

Cases Reported by Institutions.

1902	8,976
1903	10,258
1904	12,291 (inc.)

2,000 more cases were reported in 1904 than in 1903 (almost all duplicates).

Four Dispensaries (Bellevue, Presbyterian, Vanderbilt Clinic and Gouverneur) have their own nurses to visit their cases at their homes. These cases are therefore not visited by the District Nurses, but reports are required of all changes of address, discontinuance of treatment, etc.

A complete set of the annual reports of all the institutions has been obtained from 1902. These are of the greatest value as a check on the correctness of the reports of the various diseases made by each institution.

An index of tuberculosis sanitaria was also compiled, the salient facts concerning each being obtained by mail. This has been superseded by the list of sanitaria recently issued by the Charity Organization Society.

Map cards were made out for 1904, but as the old maps were filled up, they have not been plotted out as yet. Greatly improved new maps have been ordered showing each house in the Borough of Manhattan, on which the 1904 cases will be entered.

Every death from tuberculosis reported by a private physician, and which was not reported during life, has been investigated.

During 1904 all the daily lists of cases dying from tuberculosis and forwarded from the Bureau of Vital Statistics have been examined by the clerks in charge of the tuberculosis work; where cases were found to have not been reported, an examination of the death certificates in these cases was made, and in all instances where the patient had been under the care for a week or more of the physician signing the death certificate notice has been sent to said physician, calling his attention to that section of the code requiring the reports of cases of tuberculosis and requesting him to forward at once his reasons for not having so reported the same. If a reply to this communication was not received within one month, a second communication, signed by the Secretary of the Board, was sent to the physician by means of a policeman. These second letters have never failed to bring some sort of a reply.

A card index was kept of the letters sent to the physicians, giving the date of communications, certificate number, length of time of treatment, etc.

The character of the replies was daily noted, and where there appeared, from the number non-reported cases or the character of the replies received, to be any disposition on the part of the physicians to evade the law, a special report was made, and the matter brought to the attention of the Assistant Sanitary Superintendent.

Every death from pneumonia has been searched for in the tuberculosis records. If found to have been reported as tuberculosis during life an inspector has visited the attending physician and ascertained why the cause of death was not correctly given. The same was done in all

other cases of tuberculosis reported as dying of other causes. In several instances the false report was found to have been made for the sake of the life insurance, and a stop put to the practice.

On December 28, 1904, the Board of Health passed a resolution requiring that physicians notify the Department of any change of address or discontinuance of treatment on the part of their consumptive patients. Since that date the following letter has been sent to the attending physician of every "private" case of tuberculosis, together with a "circular of Instruction for Consumptives and those living with them:"

Dr. _____,

_____.

SIR—Your report (by postal: sputum) of the following case of tuberculosis has been received.

.....

Your attention is called to the following resolution of the Board of Health, passed December 28, 1904:

"It is hereby ordered that every physician having a case of pulmonary tuberculosis under his care be required to at once notify the Department of Health of any change of address of such patient, in order that the premises vacated may be properly disinfected by the Department.

"And further ordered that every physician be required to notify the Department of Health whenever a case of pulmonary tuberculosis passes from his professional care, in order that the Department, if necessary, may then assume sanitary surveillance of such case."

Postal cards for forwarding required information will be furnished on request. Kindly see that your patient is supplied with one of the enclosed circulars of information or its equivalent.

Very respectfully,

(Enclosure).

Assistant Director.

In suitable cases notice has been sent to the owners or agents of premises occupied by consumptives, instructing them to report at once when the consumptive leaves the premises. In other cases the place of employment has been visited, and the employer instructed as to the necessary precautions to be taken. During the year a number of cases were forcibly removed to Riverside Hospital, as being a menace to those about them, from their being unable or unwilling to take the necessary precautions to prevent the spread of the disease. As time goes by it becomes easier to induce the patients to enter a hospital, owing to the better education of the public.

Lodging Houses.

During November and December all cases reported as living in lodging houses were inspected. The condition of affairs was found to be most excellent. Very few (only 3 in all) new cases were found, and the managers of the lodging houses showed a desire to carry out all the departmental regulations. Spitting signs and cuspidors were found in all the houses. A supply of cards for referring supposed consumptives to the Clinic was left at each house and several have already been forwarded.

The full report of the inspector will be forwarded separately.

Table Showing Results of Inspection of Lodging-houses.

Total number cases inspected.....	1,032
Not found.....	890
Found	68
Dead	54
In Hospital.....	26
Not found but traced.....	11
New cases.....	3

An inspection was made during the year of all negro districts of the city with reference to tuberculosis. Only two new cases were found. All the others were receiving proper care, and were taking the necessary precautions. Negro physicians were also visited, and all claimed to be reporting all cases.

During 1904 an inspector familiar with the system of registration and inspection of tuberculosis was sent to the other boroughs to give the necessary instructions as to how the work should be done. A physician (Dr. Horace Greeley) was later transferred from this Division to the Borough of Brooklyn, where, under the Chief Inspector of Contagious Diseases, he has already accomplished most excellent results. A staff of inspectors and nurses has been organized, and the work is proceeding along the same lines as in Manhattan.

Tuberculosis Clinic.

On March 1, 1904, the new Clinic for the Treatment of Communicable Pulmonary Diseases was opened in the building especially erected for the purpose next door to the Department of Health. The following is a brief summary of the work done up to January 1, 1905:

Annual Report of Tuberculosis Clinic.

New—

Male	1,742
Female	897
Total new patients.....	2,639

Old—

Male	5,776
Female	2,633
Total old patients.....	8,409

Total number of patients treated.....	11,048
Average daily attendance.....	43+

Russian	956
Austrian	326
German	180
Various	383
Irish	103
Colored	39
United States.....	649

Tailors, furriers and sweat shops.....	426
Family history.....	361
Contact in home or at work.....	324
<hr/>	
Residents of Manhattan.....	2,223
Residents of Queens.....	24
Residents of The Bronx.....	126
Residents of Richmond.....	19
Residents of Brooklyn.....	247
<hr/>	
True cases, sputum found positive.....	660
Cases having signs and symptoms, sputum negative.....	591
<hr/>	
	1,251
<hr/>	
Of these, transferred to sanatoria, hospitals, etc.....	321
Under treatment at Clinic and under observation.....	440
Not receiving treatment, but under observation.....	181
Not found at address given.....	250
Dead	59
<hr/>	
	1,251
Cases under treatment not showing definite signs.....	110
Cases not found tuberculous, referred to general dispensaries, etc.....	1,278
<hr/>	
	2,639
<hr/>	
Total number of patients now under treatment.....	547
<hr/>	
Cases, sputum positive.....	660
Cases, sputum negative.....	1,116
Total number of specimens examined.....	2,790
Total number of preparations examined.....	5,580
(In the Diagnosis Laboratory.)	
Referred to Clinic by reference card.....	402
Of these, 197 applied for treatment.	
Number of patients treated in Throat Clinic.....	277
<hr/>	

At present, in addition to the daily morning and afternoon classes, and night classes three times a week, there are two throat classes and one X-ray class. At first all medicines were obtained on prescription from nearby pharmacies, but a drug room has been fitted up, in which is kept a full stock of 44 remedies used for such cases.

About 15,000 prescriptions were issued during 1904. In deserving cases milk is supplied through the nearest diet kitchen. During the year 53 patients were so referred; this means over 700 quarts a week.

Incipient cases are referred to Ray Brook Sanitarium. So far 38 cases have been so referred. Every applicant is now examined by one of the associate directors of the Clinic, and either rejected or certified to as a suitable case. Only the most favorable incipient cases are accepted. It has been proposed that all applicants to the Department of Charities for admission to Ray Brook be sent to the Clinic for examination. Every case under treatment at the Clinic is visited by one of the District Nurses and a full description of the patient's home, surroundings and circumstances obtained. A full report as to the administration and method of conduction of the Clinic will be submitted later in the year. The roster of physicians in attendance is as follows:

Roster of Employees of Clinic.

Dr. Hermann M. Biggs.....	Director.
Dr. S. A. Knopf.....	Associate Director.
Dr. J. S. Billings, Jr.....	Associate Director.
Dr. Cornelius G. Coakley.....	Consulting Laryngologist.
Dr. Walter F. Chappell.....	Consulting Laryngologist.
Dr. Louis Karmiohl.....	Attending Laryngologist.
Dr. Arthur J. Weil.....	Attending Laryngologist.
Dr. Edward R. Maloney.....	Attending Physician.
Dr. C. T. Graham-Rogers.....	Attending Physician.
Dr. Wm. Payne Simpson.....	Attending Physician.
Dr. John B. Manning.....	Attending Physician.
Dr. John J. Cotter.....	Attending Physician.
Dr. Wm. S. Cherry.....	Attending Physician.
Dr. Chas. F. Fitzgerald.....	Attending Physician.

Dr. Edw. F. Kilbane (X-Ray).....	Attending Physician.
Dr. M. Packard.....	Attending Physician.
Dr. C. J. Imperatori.....	Attending Physician.
Dr. Bruno S. Harowicz.....	Assistant Attending Physician.
Dr. H. D. Goetchius.....	Attending Laryngologist.
Dr. E. C. Schultze.....	Attending Physician.

White suits have been supplied for all the doctors and employees.

A nurse-in-charge, four assistant nurses, a doorman and a hospital clerk in charge of the drug room are constantly in attendance.

Three cleaners wash out all the rooms every morning, every precaution is taken to prevent promiscuous expectoration and the Clinic is fumigated with formaldehyde every Saturday night.

Sputum.

Over 5,000 more specimens of sputum were examined in 1904 than in 1903, owing (1) to the opening of the tuberculosis Clinic; and (2) to the increased advantage taken by physicians of the services of the Diagnosis Laboratory. The percentage of positive and negative results remains about the same as in 1903.

Diphtheria.

The colored chart shows that diphtheria promises to be less prevalent during the coming year than in 1904.

The highest point reached was in January, when 294 cases were reported during the first week. The lowest point was just before the opening of the schools; for the week ending September 10 only 91 cases were reported. A sudden fall took place at the closing of the schools and a corresponding rise at their opening. While, owing to the increased number of cases, the diphtheria death rate for 1904 (5.69) is higher than for 1903 (5.63), yet the percentage of fatal cases has been less,

being only 10.5 per cent. for Manhattan. The reduction is shown in the following table:

Table Showing Diphtheria Cases, Deaths and Case Mortality for Manhattan and Bronx, Brooklyn and Greater New York for 1902, 1903 and 1904.

	Manhattan and Bronx.			Brooklyn.			Greater New York.		
	Cases.	Deaths.	Per Cent.	Cases.	Deaths.	Per Cent.	Cases.	Deaths.	Per Cent.
1902.									
First six months.....	5,584	674	12	2,179	414	18.9	8,069	1,144	14.1
Second six months.....	4,600	454	9.8	2,035	345	16.9	6,985	850	12.1
Year.....	10,184	1,128	11.0	4,214	759	14.0	15,054	1,994	13.2
1903.									
First six months.....	6,507	720	11.	2,983	462	15.4	9,913	1,243	12.5
Second six months.....	5,155	582	11.3	2,952	411	13.9	8,692	1,069	12.5
Year.....	11,662	1,302	11.2	5,935	873	14.7	18,605	2,312	12.4
1904.									
First six months.....	7,236	840	11.6	2,748	389	14.2	10,461	1,283	12.3
Second six months.....	5,281	471	8.9	2,759	358	12.9	8,584	881	10.3
Year.....	12,517	1,311	10.5	5,507	747	13.6	19,045	2,164	11.4

The number of cultures for diagnosis of suspected diphtheria is about 1,300 more than in 1903, and the later cultures 2,800. The actual number of cultures examined was about 22,000 less than in 1903, owing to the enormous number of medical schools and trial cultures examined that year. A substantial increase has taken place in the number of cultures from Brooklyn, Queens and Richmond, showing that the physicians of those boroughs are making use of the improved facilities at their disposal.

The reporting and filing of the results of examinations has gone on satisfactorily, and no changes have been made in the system. Owing to the increase in the number of cultures it has been necessary to assign two clerks to Sunday duty, the whole of the office force in turn taking

part. The results of cultures from Willard Parker Hospital are forwarded each morning by ten o'clock. As far as possible, all other reports are sent by telephone. The number of complaints as to non-receipts of cultures and non-correspondence of bacteriological and clinical diagnoses has been very small. The condensed and improved system of reporting the results of doubtful cultures continues to prove satisfactory, as is shown by the following table:

Table Showing Number of True, False and Doubtful Cultures; Number of Confirmatory Cultures Showing Diphtheria Bacilli, and Percentages.

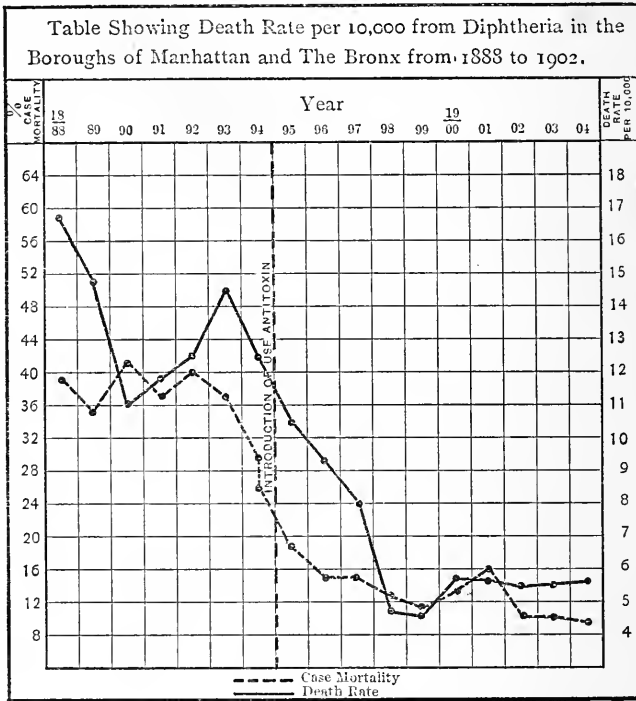
	April 1, 1903 to Dec. 31.			April 1 to Dec. 31, 1904.			1904.		
	Number of Cultures.	Confirmatory Culture True.	Per cent.	Number of Cultures.	Confirmatory True.	Per cent.	Number of Cultures.	Confirmatory True.	Per cent.
True.....	4,223	....	....	5,862	....	....	7,837	....	....
False.....	4,651	73	1.5	5,934	81	1.3	9,692	112	1.1
Doubtful	609	116	19.	236	103	43.	412	153	39.
(B) Scanty.....	158	24	15.	71	32	45.	148	43	29.
(C) Contaminated.....	59	11	18.	67	27	40.	95	38	40.
(E) Suspicious.....	305	66	21.	63	36	57.	103	58	56.
(F) Laryngeal.....	87	15	17.	35	8	22.	66	14	21.
Doubtful (per cent.) or total. ....	....	....	6.4	....	....	1.9	....	....	2.2

In 1902 the percentage of doubtful cultures was 17. In 1903, after April 1, it fell to 6.4, as shown above, and in 1904 a further reduction took place to 2.2 per cent.

Administration of Diphtheria Antitoxin.

The results obtained by the free injection of antitoxin have been most excellent. The complete figures cannot be given before February 15, 1905, but up to October 1, 1904, 1,461 cases of diphtheria had been injected, of which only 83 died, a case mortality of 5.6 per cent., includ-

ing the moribund cases. The attached diagram shows the steady fall in death rate and case mortality since the introduction of antitoxin.



Owing to the increased number of calls for the administration of diphtheria antitoxin, and to the increase in the number of tuberculosis inspections, two additional inspectors were assigned, making twelve in all.

All the inspectors have received special instructions from Dr. Somerset in intubation and extubation. The intubation set used has a small extractor. A special antitoxin syringe has been devised and furnished. It holds 20 c. c. of serum; has removable rubber piston, and so far has proved most satisfactory. Metal boiling cases have been ordered for these syringes.

Typhoid Fever.

During the year 1904, 1,786 cases of typhoid fever were reported in the Borough of Manhattan, and 281 deaths; a mortality of 15.7 per

cent., as against 3,334 cases and 314 deaths; a mortality of 13.4 per cent. of 1903.

Of the 1,786 cases reported 464 were either not found, turned out to be no cases, or were non-residents. Data were obtained in regard to the remainder (1,322 cases) and the location of each case was indicated upon a map by different colored tacks; each color representing, as far as possible, the etiological factor or factors in the causation of the disease.

In 351 cases, or 26.5 per cent., it was impossible to determine from the histories any source of infection (Croton water?). In 210 cases, 15.8 per cent., the only source of infection appeared to be absence from the city within a period of four weeks previous to the onset of the disease.

378 cases, 28.6 per cent., were reported as consumers of raw milk. 203 cases, 15.3 per cent., were not only consumers of raw milk, but had also been out of the city within four weeks of the onset of the disease.

22 cases, 1.6 per cent., were reported as being habitual consumers of raw oysters.

44 cases, 3.3 per cent., were reported as being consumers of raw oysters and also raw milk.

39 cases, 2.9 per cent., were apparently exposed directly to contagion from other cases.

14 cases, 1 per cent., were exposed to direct infection and were also out of the city within four weeks of the development of the disease.

61 cases, 4.6 per cent., were directly exposed to infection and were also consumers of raw milk.

From these figures we see that 668 cases, or 50.5 per cent., were consumers of raw milk; also that 66 cases, or only 5 per cent., were habitual consumers of raw oysters, and of this number 44 were also consumers of raw milk.

The colored chart shows the usual seasonal variations in the prevalence of the disease. The highest number of cases was reported for the week ending August 27—82; the lowest, April 16—7. On August 27, 13 deaths were reported; on January 23, none. The cases and deaths ran a parallel course.

Every case of typhoid fever during 1904 has been investigated. All hospital cases have been visited by an inspector, both at the hospital and at their former residence. In all cases reported by a private physician a full history has been obtained from the physician or by an inspector. The sources of milk supply have been carefully investigated and the records kept in a separate "Milk" index. Many instances of unsatisfactory modes of keeping, storing and handling of milk have been reported to the Division of Inspections, likewise instances of unsanitary condition of the premises. In all cases of death from typhoid fever not reported during life, the attending physician has been visited and instructed as to the necessity of reporting all cases as soon as recognized.

Whenever disinfection of mattresses and bedding has been requested it has been done. Every case of typhoid fever has been plotted on a large map (scale 1,000 feet to the inch), different colored pins being used according to the probable source of origin, as follows:

1904.

White—No source of infection known.

Red—Patients who were out of the city during the four weeks previous to illness.

Blue—Patients who were habitual or occasional consumers of raw milk.

Green—Patients who were occasional or habitual consumers of raw milk and who also were out of the city during the four weeks previous to illness.

Brown—Patients who were habitual or occasional consumers of raw oysters.

Plaid—Patients who were habitual or occasional consumers of both raw milk and raw oysters.

Orange—Patients who were directly exposed to infection from patients ill with typhoid.

Orange, red dot—Patients who were directly exposed to infection from patients ill with typhoid out of the city.

Orange, red dot—Patients who were directly exposed to infection from patients ill with typhoid, and who were also consumers of raw milk.

Proposed New Scheme for 1905.

White—No source of infection known.

Red—Patients who were out of the city during the four weeks previous to illness.

Blue—Patients who were habitual or occasional consumers of raw milk.

Green—Patients who were occasional or habitual consumers of raw oysters.

Orange—Patients who were directly exposed to infection from patients ill with typhoid.

Some idea of the work done may be gained from a comparison of the number of inspections in 1904 (3,248) with those in 1903 (365).

While nothing startling has been learned or accomplished, it is because there was no epidemic during the year. Should an epidemic occur, it is believed that by means of the system of inspection, of the records of the source of milk supply, the map, etc., such an epidemic would be promptly recognized, its source determined and the necessary steps to check it could be quickly taken.

The recording and reporting of the results of the examination of blood from suspected cases of typhoid has gone on as usual, and no more than the usual number of complaints received.

The year's experience with the examination of urine for the presence of the diazo reaction goes to confirm the view that this test is only of confirmatory value, and by itself is not at all pathognomonic.

In 68 instances the diazo test, while giving a typical reaction as to color, failed to give the typical two-layer sediment. Letters were written to the attending physician, asking the outcome of the case, and if it proved to be one of typhoid. No answer was received in 25 instances. Of the remaining 43, 31 proved clinically to be typhoid fever, most of them of a very mild type. In the majority of cases the diagnosis was confirmed by the presence of the widal reaction in the blood. Among the negative cases were pulmonary tuberculosis, miliary tuberculosis, autointoxication and malaria.

It is fair to conclude that the presence or absence of the sediment has but little to do with the reaction, which depends entirely upon the

development of the characteristic salmon-pink color; this fact will lead to a saving of time, as specimens have been held twenty-four hours to await the formation of the sediment.

Dr. Waters of this Division submitted a report on the epidemic of typhoid in the Borough of The Bronx in August, 1904, but nothing definite was determined as to its cause. An inspector was sent to Brooklyn during the past autumn to study the institution cases of typhoid in that borough, but the conditions were found to be the same as in Manhattan, and nothing new was learned.

Pneumonia.

As shown by the chart, the prevalence of lobar pneumonia has varied widely with the season of the year. The highest point reached was 201 deaths for the week ending March 5; the lowest July 30—16.

During the autumn of 1904 the number of deaths has risen steadily, until on January 1, 1905, it was within 15 of the number at the same date in 1904.

As will be seen in the table of statistics, the number of deaths from broncho-pneumonia also rose sharply, being 929 more than in 1903.

Early in the year all deaths from lobar pneumonia were investigated, in the hope that some cause might be found for the great increase in the number of deaths from that cause. But nothing of any value was ascertained. On October 12, 1904, a Committee for the Investigation of Acute Respiratory Diseases was appointed by the Board of Health. It is composed of the following physicians: Edward G. Janeway, M. D., William Osler, M. D., William H. Welsh, M. D., T. Mitchell Prudden, M. D., Frank Billings, M. D., John H. Musser, M. D., Theobald Smith, M. D., L. Emmett Holt, M. D., and Hermann M. Biggs, M. D.

Pneumonia was the first disease to be investigated, and a beginning was made with cases in institutions. Special history blanks and reporting postal cards were prepared, and two inspectors are following up the cases, which are being reported by the institutions as soon as the diagnosis is made. The inspectors' reports are on file and will be summarized early in 1905. A large map, 600 feet to the inch, has been prepared, on which the various classes of cases will be recorded by means of dif-

ferent colored pins, as in typhoid. Postals for the reporting of cases by private physicians have been prepared, and a little later the same system will be put into effect for the private cases as obtains for the private cases of typhoid fever.

Cerebro-spinal Meningitis

Deaths from this disease were first differentiated in the weekly bulletin in April, 1904. The maximum (97) was reached in the week ending May 14, and the minimum (5) November 5. Since December 1 the number has been rising, reaching 33 for the week ending December 17. The death rate for 1904 was 5.31 per 10,000.

All deaths and cases reported are recorded and entered on a large map, which shows the distribution of the disease throughout the city. During the height of the epidemic all cases reported were investigated. Notice was sent to physicians that examinations would be made free of charge in the Diagnosis Laboratory of specimens of spinal fluid and nasal discharge for the presence of the meningococcus intracellularis of Weischelbaum. Cultures were also made in many cases, but invariably proved negative. The examinations of the nasal secretion also proved untrustworthy, the spinal fluid alone giving positive, reliable results.

Abortion and Puerperal Septicaemia.

All cases reported are filed, and those worthy of investigation are looked into. It is very difficult to obtain the names and addresses of the midwives responsible for so many cases.

Office.

The office force increased during the year to such an extent that the office room became utterly inadequate; this will be to some extent remedied when the small alcove room and the partitioned-off inspectors' room in the Division of Inspections are available for use.

Too much can hardly be said as to the *morale* of the office force, especially of the tuberculosis clerks, who are faithful, careful and efficient in their clerical duties, which at times are very tiresome and uninteresting.

Diagnosis Laboratory.

The actual work accomplished in the laboratory during the past year has been satisfactory. But the present quarters are dirty, ill ventilated and small. It is earnestly hoped that the proposed renovation and enlargement of the laboratory will soon be carried out.

Tuberculosis.

A separate room for the preparation of sputum specimens is most urgently needed; this branch of the work has increased so greatly that four laboratory assistants are assigned to it, and the services of a fifth are now needed. Each negative specimen should be thoroughly searched; with the present force this is not possible.

Diphtheria.

Several improvements have been made in the system of examining and reporting specimens. All specimens showing a scanty or no growth are at once replaced in the incubator, and re-examined at 3 P. M. on the same day. In cases showing streptococci a report to that effect is sent to the attending physician. In all cases in which the original clinical diagnosis was tonsillitis and diphtheria bacilli persist longer than four weeks, a culture is sent to the Research Laboratory to be tested for virulence.

Typhoid and Malaria.

No change has been made in the methods used for examining blood for the widal reaction, urine for the diazo reaction and blood for the presence of the malarial parasite.

The extremely small number of cases in which malarial parasites have been found (1.7 per cent.) is due to: (1) that the specimens are sent in late in the disease; (2) that quinine has almost invariably been given, and (3) that the great majority of the cases are not malarial fever.

All assistant bacteriologists and laboratory assistants are provided with white linen suits, which are worn while they are working in the laboratory.

Culture Stations and Collections.

At the close of the year 1904 there were in existence in the Borough of Manhattan 161 culture stations of the Department of Health. Of these 25 are known as regular stations, being visited by the collector of the Department daily; the remainder being sub-stations, delivering to the nearest regular stations.

In The Bronx there were 30 stations, 10 of which are regularly visited by the collector.

In the Borough of Brooklyn there were 41 stations, of which 33 are regular stations, 7 visited daily with the exception of Sundays and holidays, at which time deliveries are made to the nearest regular stations. Three stations in this borough, being situated in the outlying districts of the city, are sub-stations and deliver to the nearest regular stations.

The Borough of Queens: 25 stations, of which 8 are regular.

The Borough of Richmond: 8 stations, 7 being regular and 1 sub-station.

During the year regular routes were established in the boroughs of The Bronx and Queens, 10 stations being regularly visited in the former and 8 in the latter borough. In the Borough of Queens an incubator has been installed and cultures collected are left there and brought to the Diagnosis Laboratory the following morning. This enables physicians to leave specimens at this station as late as 10 o'clock in the evening. Due notice was sent to all physicians in the borough of the change and improvement in service which had been made. An incubator was also installed in one of the stations in the Borough of Richmond and the cultures and other specimens from this borough are brought to the laboratory each morning.

In the Borough of Brooklyn two additional collectors were added to increase the efficiency of the service.

In the Borough of Manhattan 24 new stations were established and 1 was discontinued.

In the Borough of The Bronx 5 new stations were established.

In the Borough of Brooklyn 3 new stations were established.

In the Borough of Queens 6 new stations were established.

Provision has been made for the equipment of each of the 25 regular stations in the Borough of Manhattan with the specially designed cabinets for the purpose of holding supplies, of receiving the specimens left by physicians and by the sub-stations, and for the supplies brought there by the collectors for the various sub-stations connected with the regular stations. These cabinets are excellent in style and construction and will redound to the credit of the Department.

Monthly inspections have been made of all the sub-stations in the boroughs of Manhattan, The Bronx and Queens by either nurses or medical inspectors; written reports being forwarded in regard to the number and condition of supplies on hand, and the general appearance of the stations. A card index is kept of the supplies ordered by each station and of the results of the monthly inspections.

Where stations have been found to be out of supplies the proprietors have been communicated with by telephone, attention called to the matter and warned that further negligence in such matters might forfeit their right to continue the station.

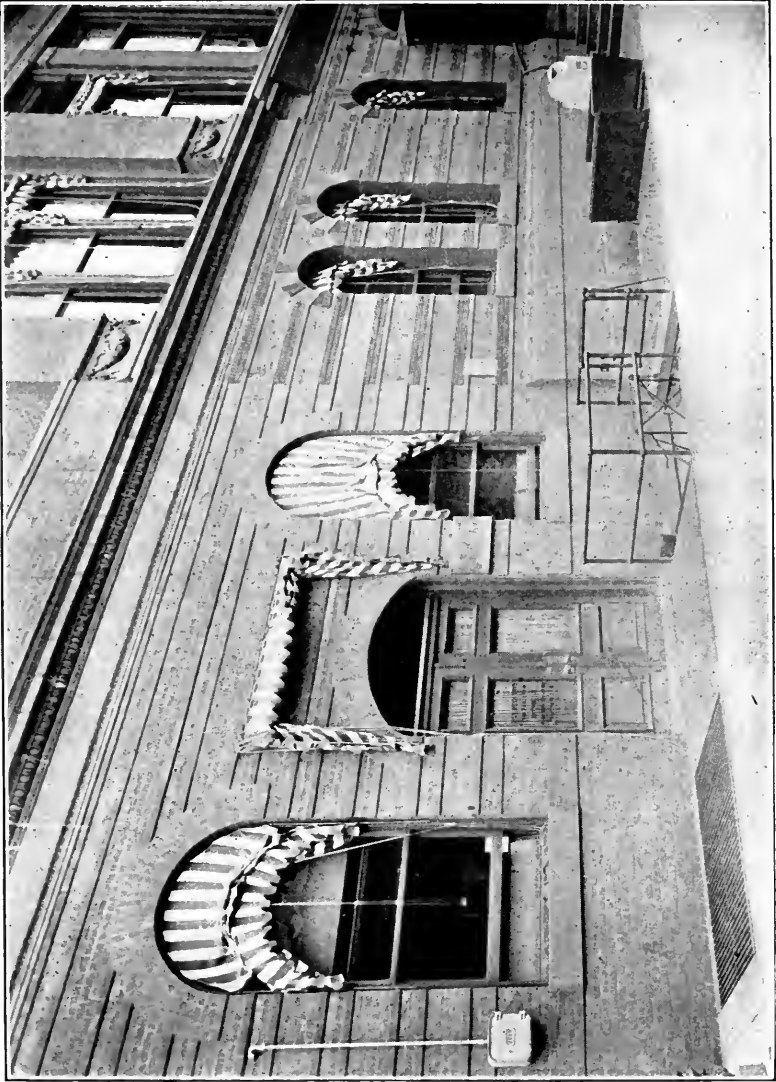
This system of monthly inspection has been satisfactory and, as a rule, the condition of the stations as to supplies, etc., is much better than before this system was adopted.

Culture Tubes.

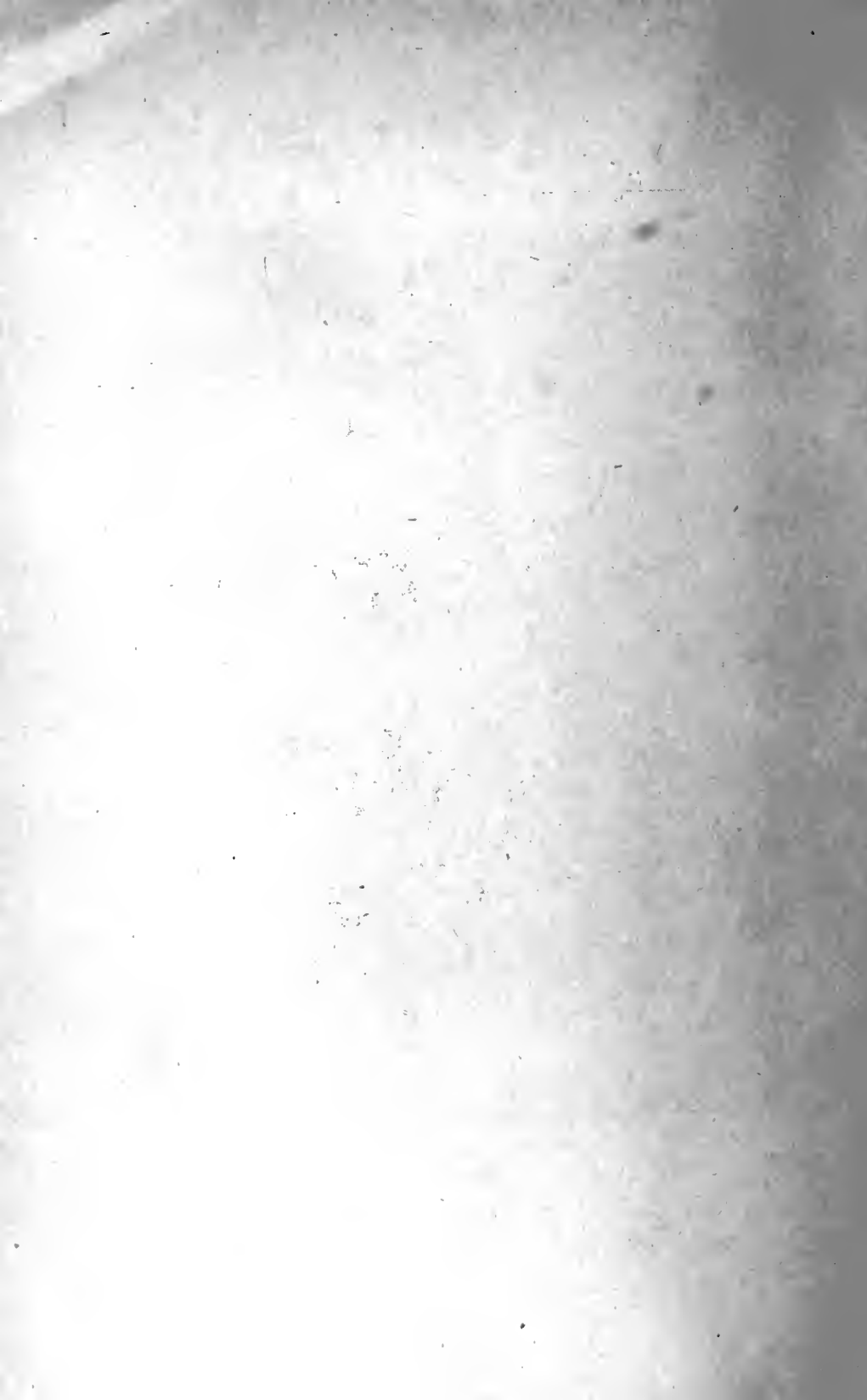
5,000 more culture tubes and 8,000 more swabs were prepared and issued during 1904 than in 1903. Very few complaints as to the media have been received.

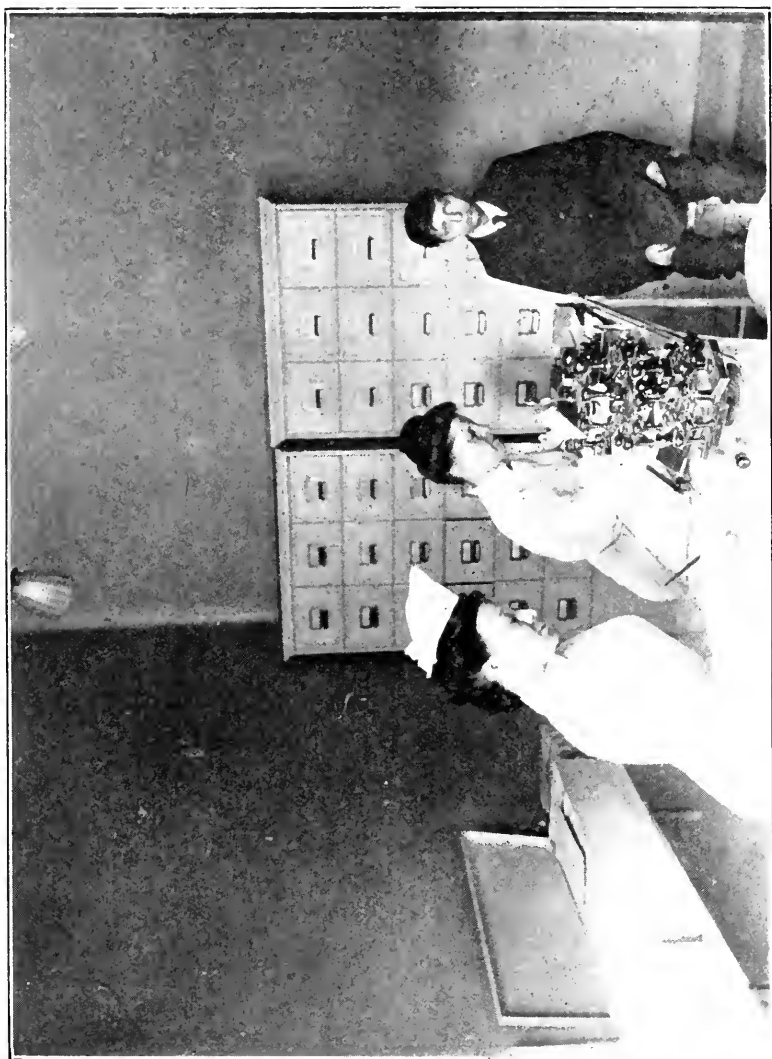
Respectfully submitted,

J. S. BILLINGS, JR., M. D.,
Assistant Director.

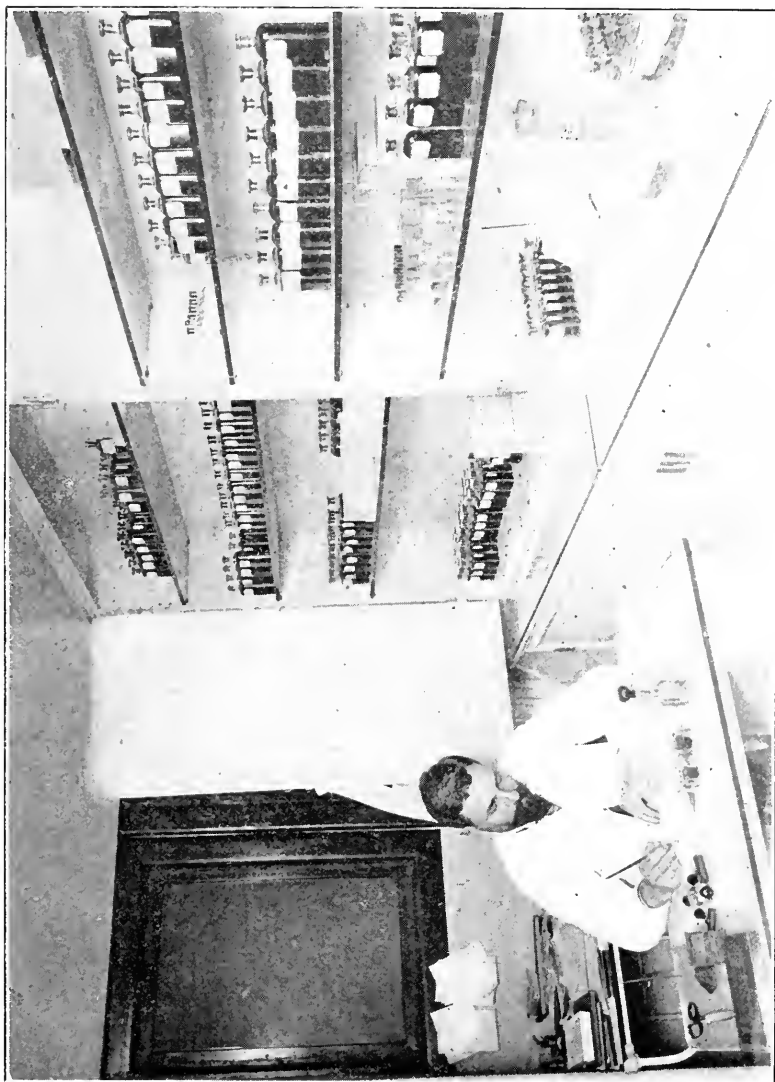


EXTERIOR, TUBERCULOSIS CLINIC.



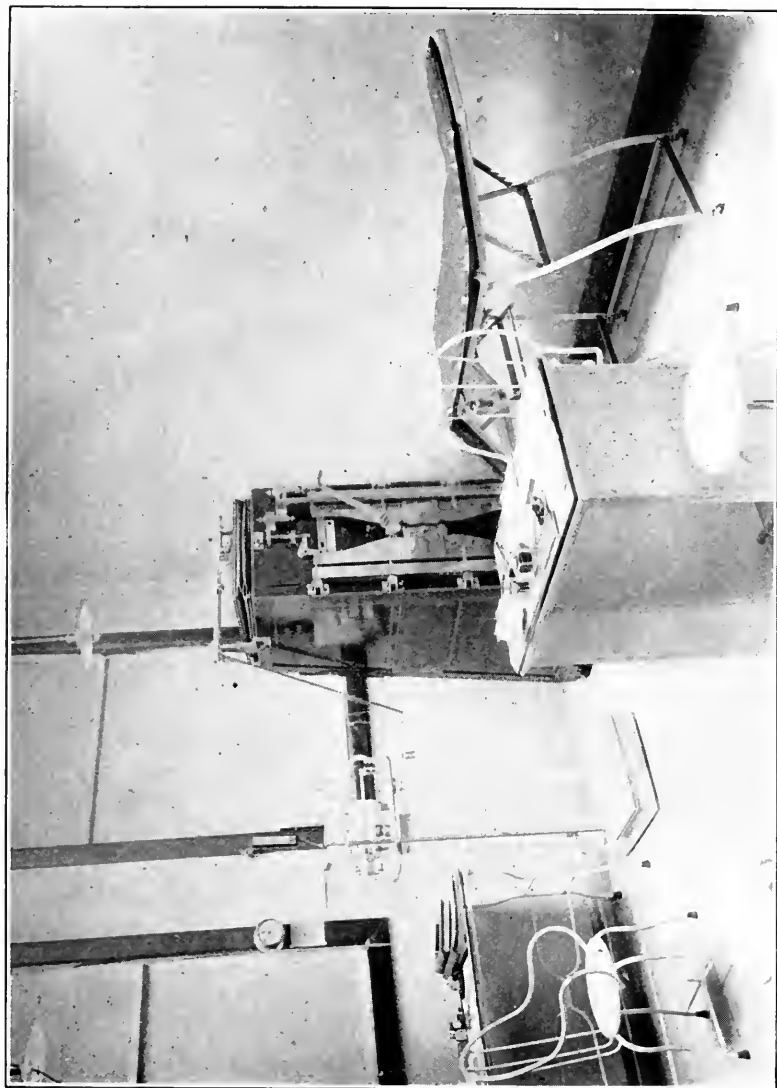


REGISTRATION ROOM, TUBERCULOSIS CLINIC.

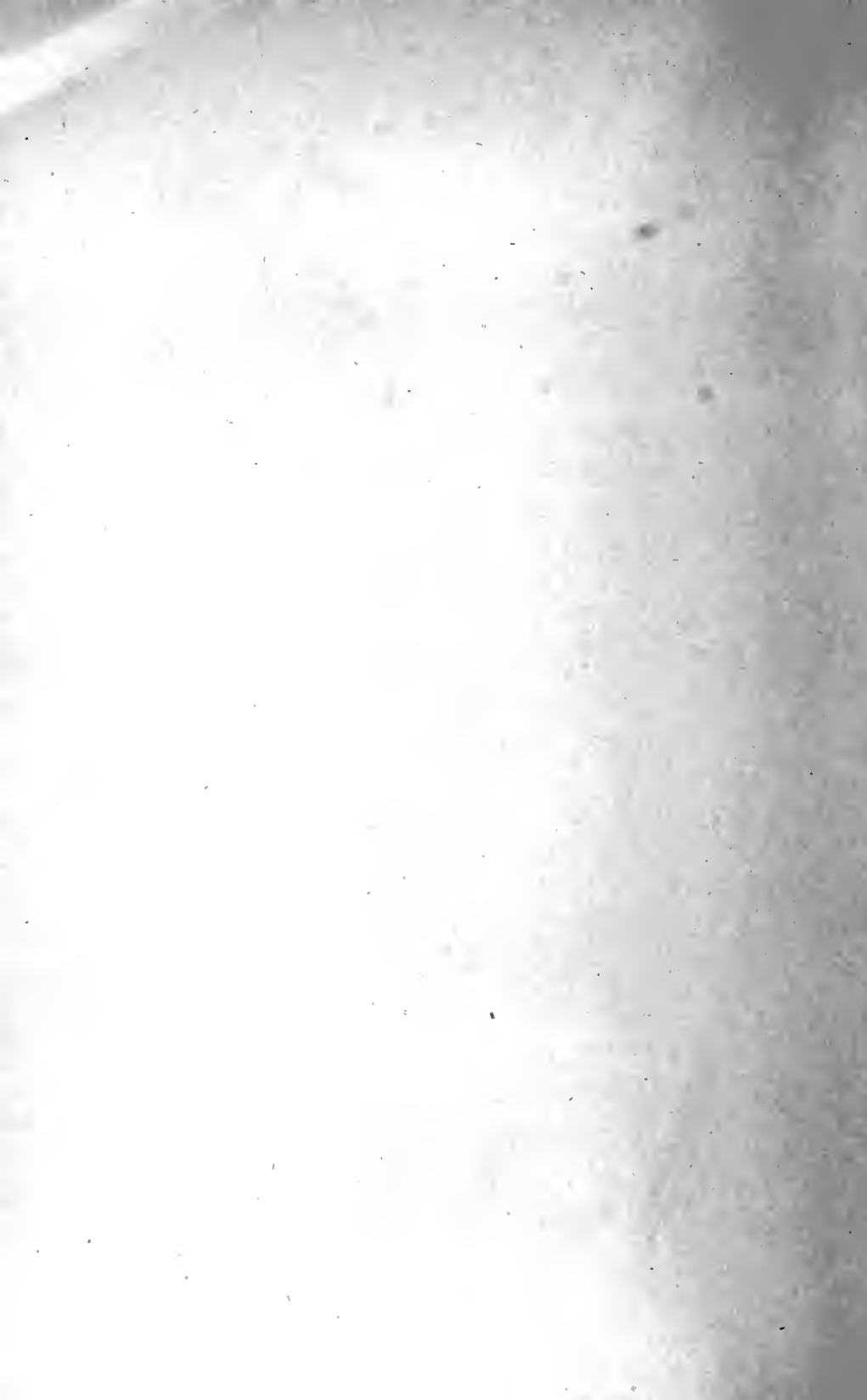


DRUG ROOM, TUBERCULOSIS CLINIC.



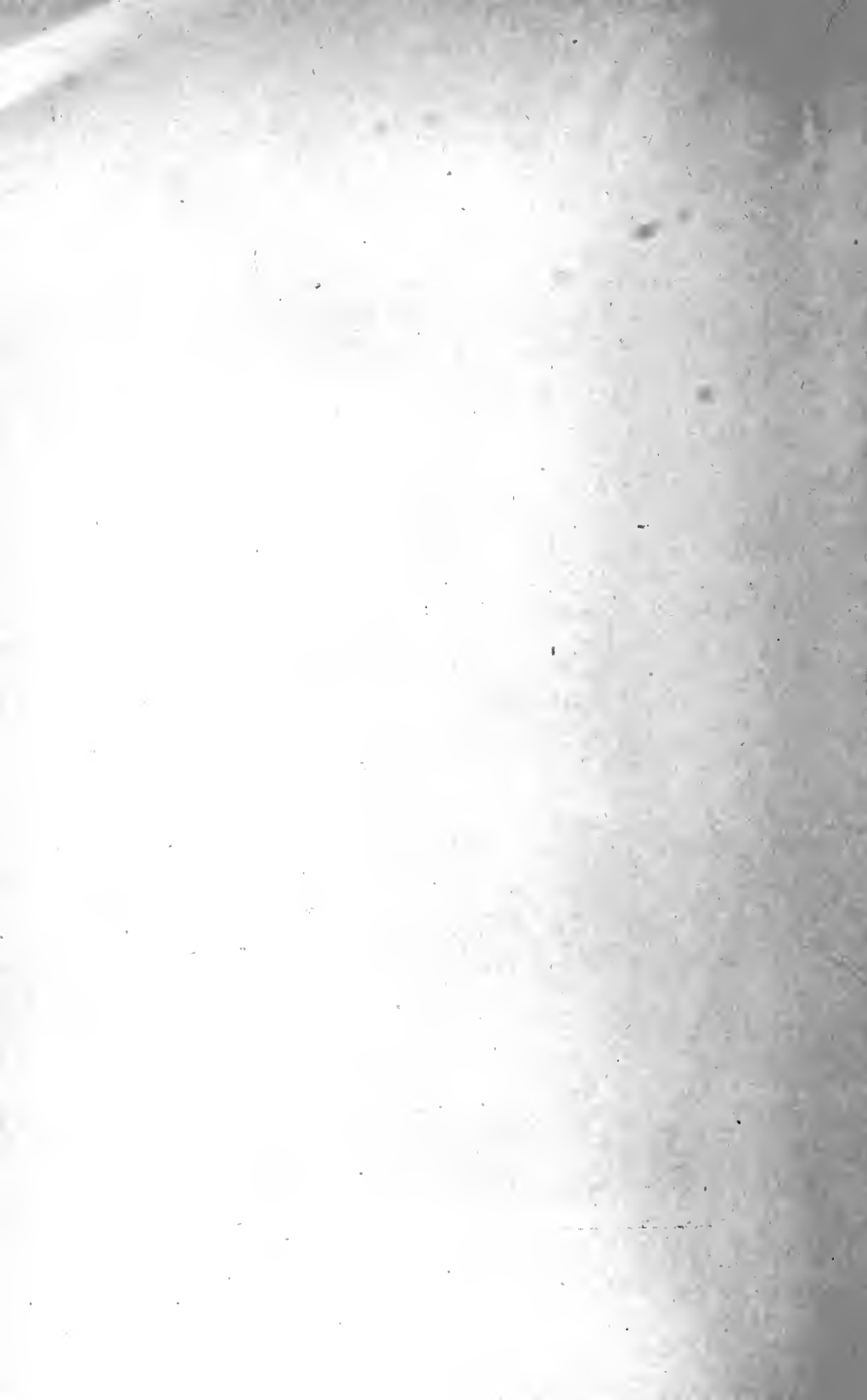


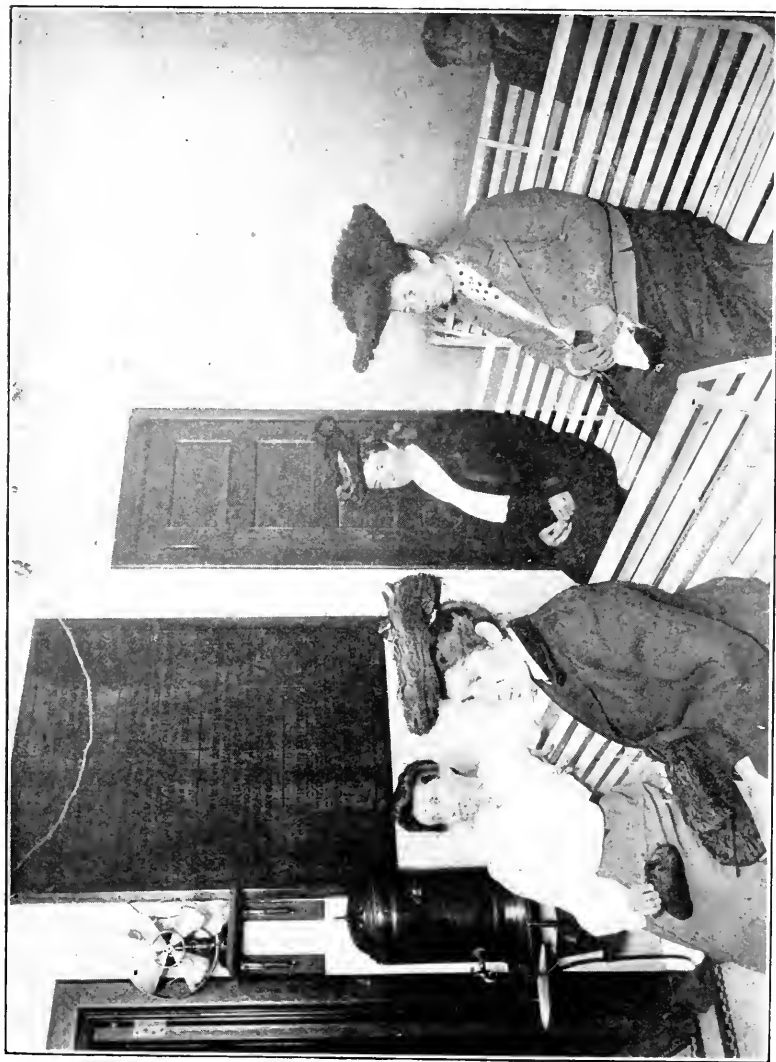
EXAMINING ROOM, TUBERCULOSIS CLINIC.



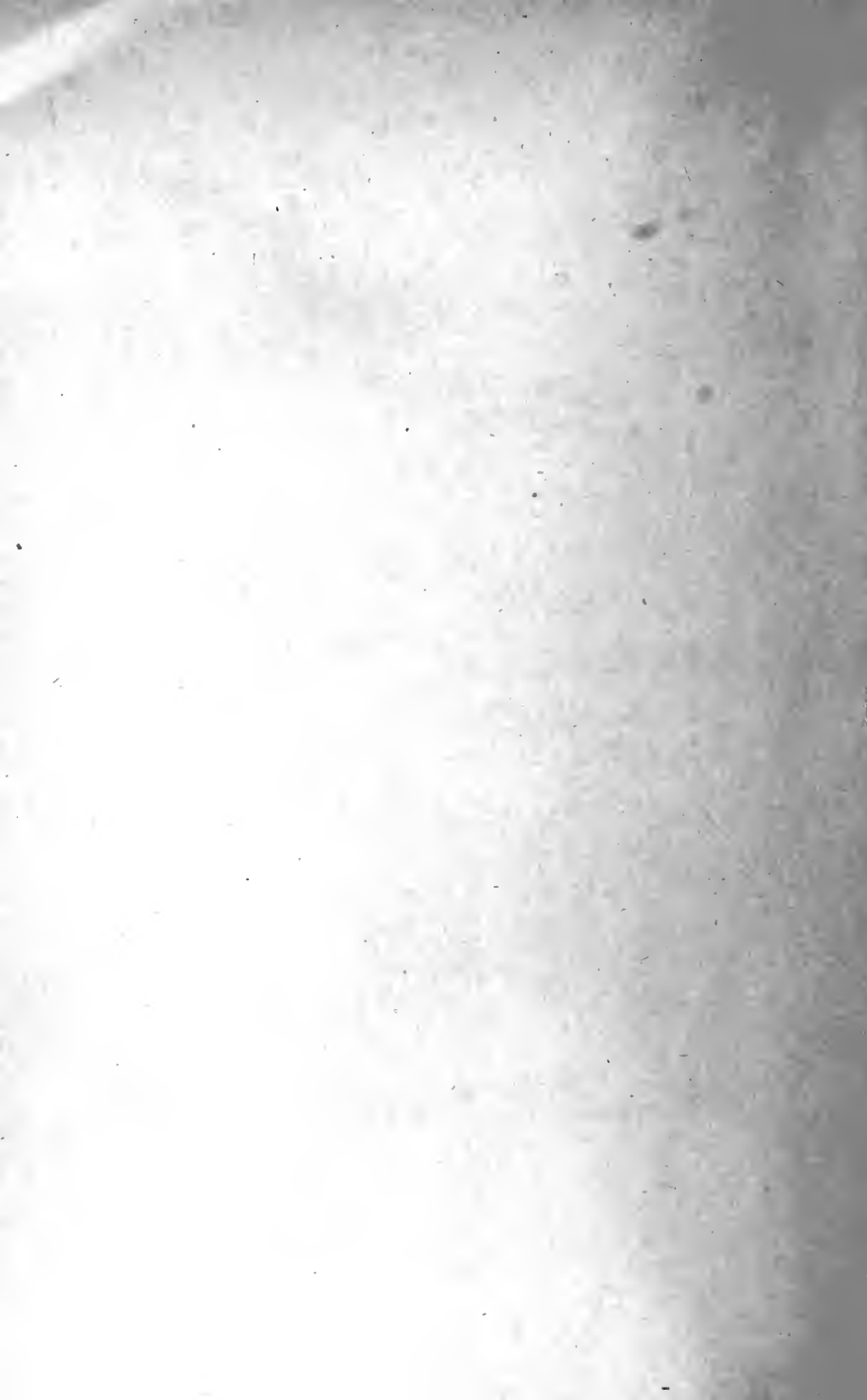


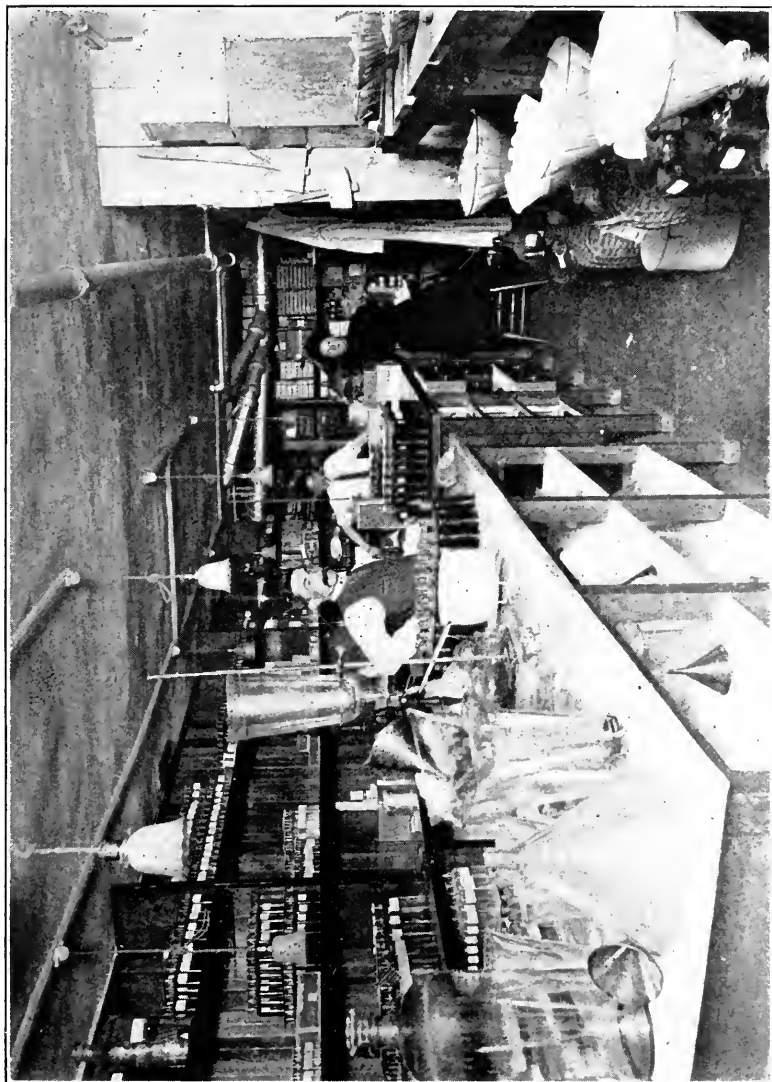
MEN'S WAITING ROOM, TUBERCULOSIS CLINIC.





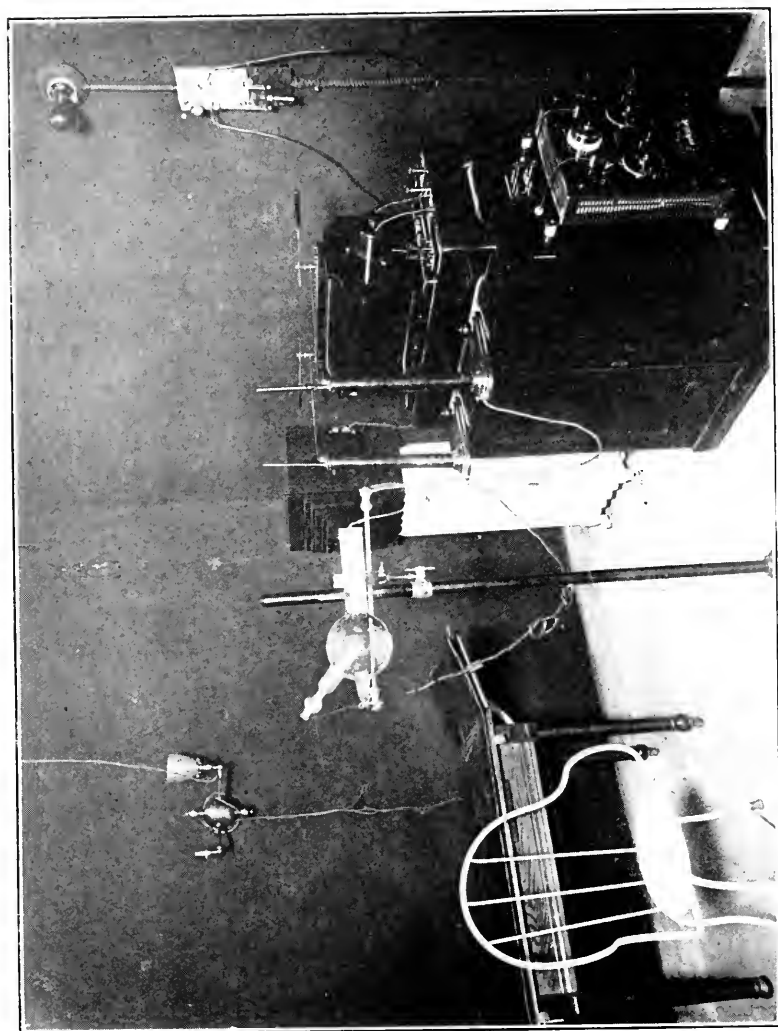
WOMEN'S WAITING ROOM, TUBERCULOSIS CLINIC.





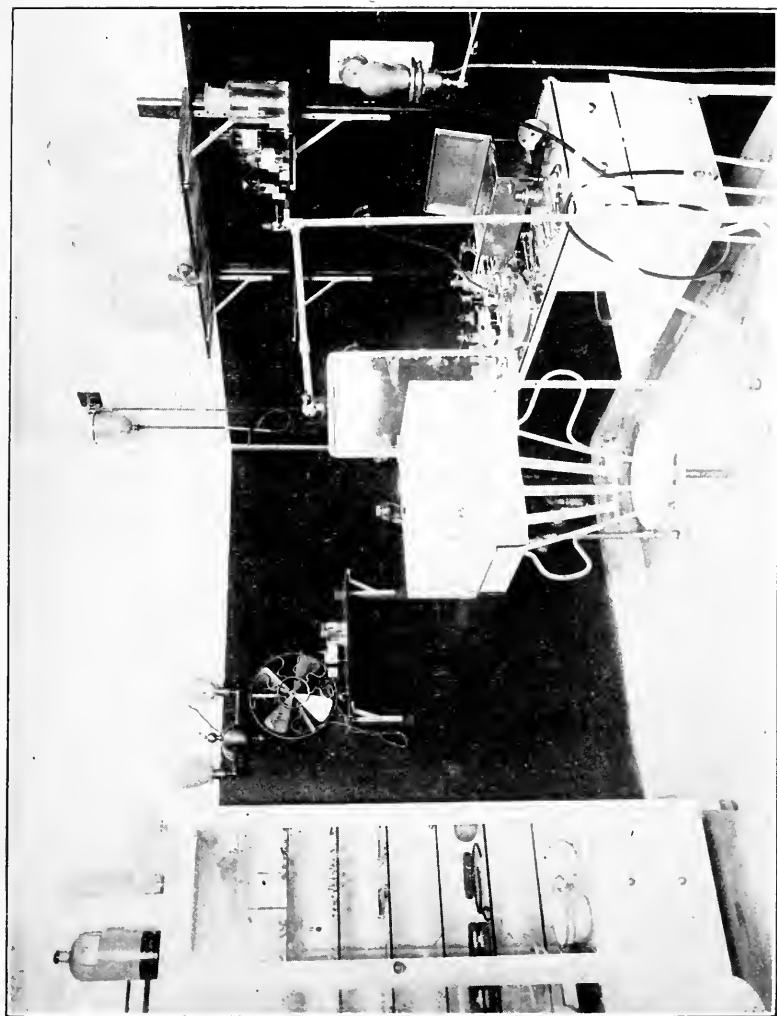
DRUG LABORATORY, DEPARTMENT OF HEALTH.





X-RAY ROOM, TUBERCULOSIS CLINIC.





THROAT ROOM, TUBERCULOSIS CLINIC.

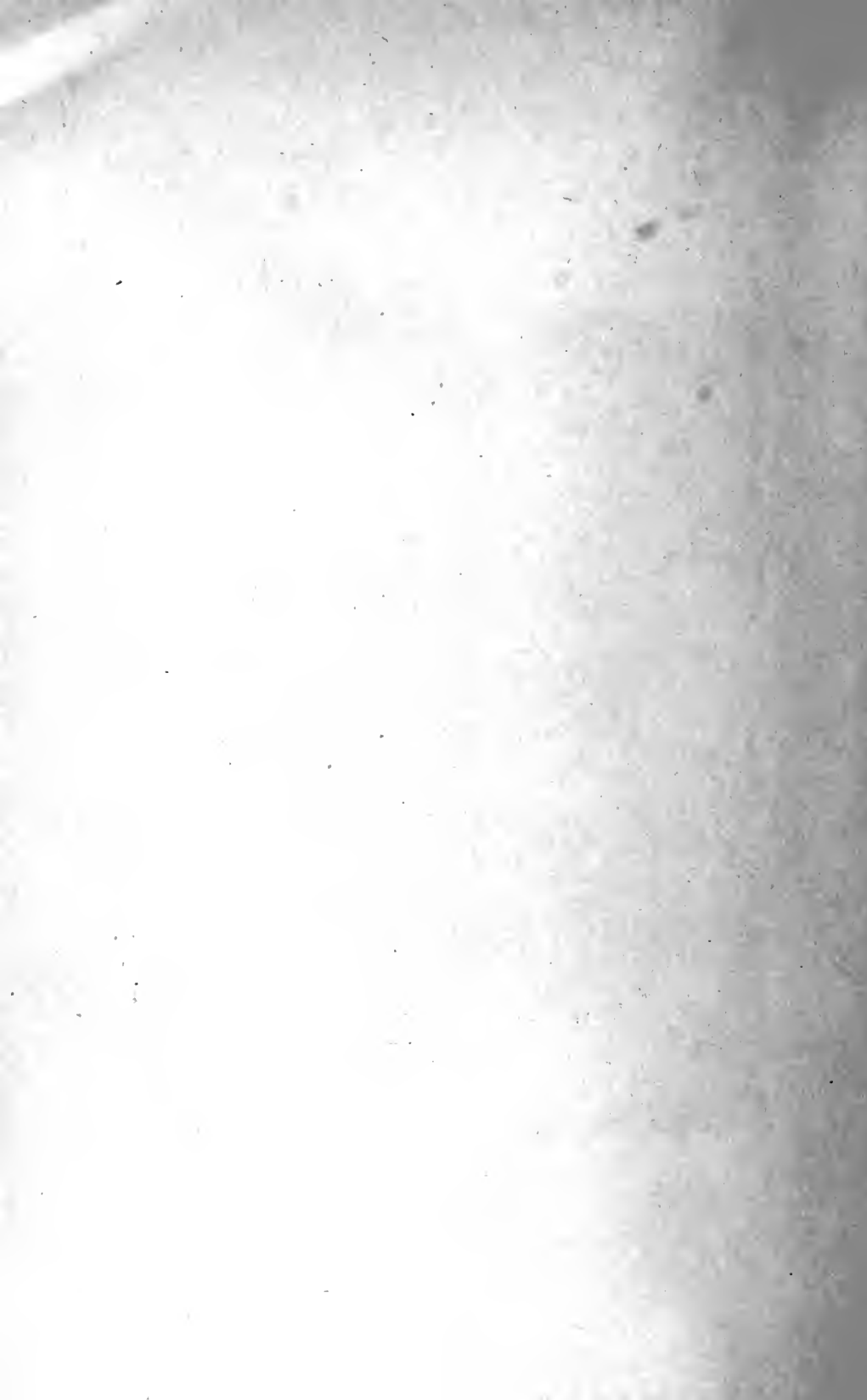


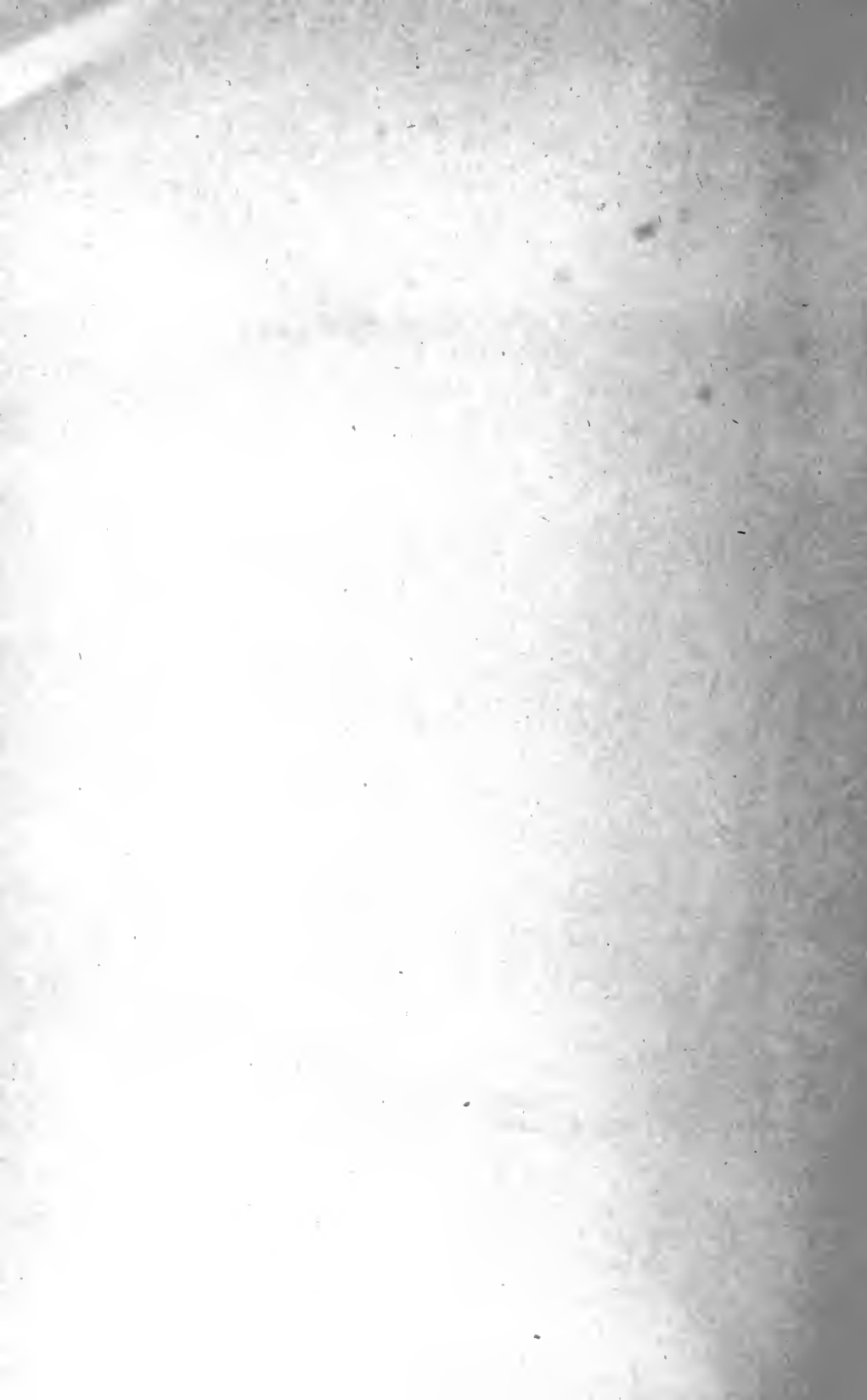
Do not spit on the floor or in anything except the brown paper envelope furnished for the purpose. When you cough, hold the piece of muslin given to you before your mouth. Use the muslin also for wiping the mouth or nose after spitting or sneezing. Men are forbidden to smoke or wear their hats while in the Clinic.

Es ist verboten auf den Boden zu spucken. Spucken Sie in das braune Papier Convert welches Sie beim Eintritt erhalten. Wenn Sie husten oder niesen halten Sie das weisse Muslintuch vor den Mund dann wischen Sie Mund und Nase mit demselben Tuch ab. Das Rauchen ist hier verboten. Die Männer müssen ihre Hüte abnehmen.

Non sputate per terra ne altrove, ma soltanto nella busta color marrone che vi viene fornita a questo scopo. Quando tossite tenetevi davanti alla bocca il pezzo di mussolina che vi viene dato espressamente. Usate la stessa mussolina per asciugarvi la bocca o il naso dopo aver sputato o starnutato. E proibito agli uomini di tenere il cappello in capo e di fumare quando vengono alla clinica.

שפיט נא אפן בלאחר אונד נידענד אנדערס ווא אבער
נאר אין בריינעס פאפיר בייטוי וואס מען גיבט איך דאנא ווען
איר וואלט האלט זיך פאר דאס שטיק מאלדען פאר
דעם מוהל אונד ווישט זיך דאמיט ארום נאך דעם
אויס שפייען אדער נאך דעם נוסטען עס איסט
פארבאטען צו ווינען אין קליניק מענער זאלן אונטער
נעמען דא היטלען.





CIRCULARS, TUBERCULOSIS CLINIC.

[illegible]

DEPARTMENT OF HEALTH, CITY OF NEW YORK,
 SOUTHWEST CORNER OF 55TH STREET AND SIXTH AVENUE, }
 BOROUGH OF MANHATTAN, }
 NEW YORK, December 31, 1904.

DIVISION OF CHEMISTRY.

To the Assistant Sanitary Superintendent, Borough of Manhattan:

SIR—I have the honor to present the following report of the work performed by the Division of Chemistry during the year 1904:

The force of this Division consists of—

Chief Chemist.

Assistant Chemists.

(a) Milk analysis.

(b) Water analysis.

(c) Food analysis.

(d) General analysis.

Food Inspectors.

(a) Milk inspection.

The work of this Division has been of a very varied character, combining, with chemical analyses, the inspection of milk.

The chemical analyses may be conveniently grouped: First, *Food Analyses*; second, *Drug Analyses* and third, *General Analyses*.

The inspection of milk likewise may be grouped under: First, *City Inspection*, and second, *Country Inspection*.

Food Analysis.

Under the head of food analysis the most important are those of water and milk.

Water.

Samples of water taken from the Croton and Ridgewood supplies have been examined weekly, with the exception of the Ridgewood supply for the weeks ending May 14, 1904, and June 4, 1904, due to the fact that, through some misunderstanding, samples were not received

for analysis. All other water supplies owned both by the City and private corporations are now being examined monthly. Some of the private supplies in Brooklyn were not examined in the early part of the year. The following are the Pumping Stations: *Borough of The Bronx*—Kensico and Westchester Supplies. *Borough of Brooklyn*—Flatbush Water Works, German-American Improvement Company, Gravesend, Long Island Water Supply, New Utrecht, Blythebourne and Pfalzgraf. *Borough of Queens*—Citizen's Water Supply, which includes Elmhurst Supply, Woodside Supply, Pumping Station No.3, Pumping Station No. 4 and Blissville Supply, College Point Supply, Dunton Supply, Far Rockaway Supply, Jamaica Supply, North Beach Supply, Sunnyside Supply, Whitestone Supply and Woodhaven Supply. *Borough of Richmond*—Crystal Water Company, Staten Island Water Company, South Shore Water Company and Tottenville Supply.

A large number of wells and cistern waters in the different boroughs of New York City have been analyzed; there are, however, still a very large number to be examined.

Milk.

Milk samples, taken systematically from all portions of the city, have been analyzed daily, excepting Sunday.

Besides these two important foods a great variety of others have been examined for adulterations. Adulterations include preservatives, artificial coloring matter, fillers, which are usually of an inert nature, poisonous substances and entire substitution. These food substances are obtained by their purchase in the open market, and also are samples submitted to the Department of Health as representatives of articles to be used at the public institutions which it controls. These foods represent almost every class of substance for human consumption.

Drug Analysis.

The examination of drugs includes medicines. These articles have been brought to the Laboratory by outside interests, such as the County Medical Society, Society for Prevention of Cruelty to Children, New York State Medical Association, Police Department, and have also been sent in from the Department of Health's Clinic Drug Supply.

Analyses of these drugs and medicines were made to establish their character or purity.

General Analyses.

The term "general analyses" as here used covers a class of a very varied nature and the substances examined were derived likewise from many different sources, namely: Police Department, Department of Water Supply, Gas and Electricity, Department of Finance, Department of Education, Department of Charities, District Attorney's office, Coroner's office and the Department of Excise.

Inspection of Milk.

The work of milk inspection during the year 1904 was extended in the city by the enforcement of the ninth clause of section 53 of the Revised Sanitary Code. This clause states that "Milk the temperature of which is over 50 degrees Fahrenheit" is adulterated. Under this clause inspectors were detailed to visit systematically in the city receiving depots, shops and wagons, with instruction to destroy any milk found to be at or above the prescribed temperature. Printed notices were sent to the presidents of all railroads and steamboat companies and all wholesale and retail milk dealers, calling their attention to this provision of the Sanitary Code, and giving them an opportunity to correct their methods of keeping milk during transportation and in the shops. Nearly 30,000 quarts of milk were destroyed for non-fulfillment of the ninth clause of Section 53. It had been the custom of wholesale dealers, until the summer of 1904, to collect sour milk from their retail customers and convert it into pot cheese. Most of this sour milk was in a very dirty and decomposed condition before it could be made into pot cheese. This custom, through the help of the Assistant Sanitary Superintendent for Manhattan, was stopped.

Country Inspection.

A very important addition to the inspection of the milk supply is the country inspection. This was begun in the month of December. Three Milk Inspectors are now detailed to inspect creameries and farms from which New York City gets its milk. They report, in writing, the result

of their inspections in detail. These reports are illustrated by photographs. Much good has already been accomplished by these inspections, for wherever the conditions of a creamery, or one of its constituent farms, is found to be unsanitary the milk from that creamery is shut out of the city until the recommended changes are made. This method is very effective. In cases where conditions do not warrant the exclusion of the milk, but are, nevertheless, not good, recommendations are made for correction, and a reinspection is made to see that these recommendations are followed.

Changes in the Laboratory Corps.

Several changes have occurred during the past year. Joseph A. Deghueue, Ph. D., resigned the position of Chemist and James P. Atkinson, Assistant Chemist, was appointed to fill the vacancy. Edmund Clark, M. S., resigned the position of Assistant Chemist. Frederick Kenney and Sidney Davis were appointed Assistant Chemists.

Number of Chemists.

The total number of Chemists at work in the Laboratory, Fifty-fifth street and Sixth avenue, is seven. Two are assigned to the analysis of milk, which involves court work at least one a week. One Chemist is assigned to the analysis of water. The remaining Chemists attend to all the other work of the Laboratory.

Changes and Addition in the Corps of Milk Inspectors.

At the beginning of 1904 there were 11 Milk Inspectors. In the spring 6 more were appointed. During the summer one of the number was detached and assigned to another branch of food work in Brooklyn. The total number of Milk Inspectors now is 16. The appended statistics give in detail the work of the Chemists and Milk Inspectors, together with per cents. of adulterations of milk in Manhattan and Brooklyn.

The entire milk supply for Manhattan and a large part of the Brooklyn supply comes from outside sources, though a great deal is brought into Brooklyn from its outskirts and from the Borough of

Queens. The following figures, therefore, are somewhat of an index of the purity of the milk before it enters the city, though naturally there must be some adulteration chargeable to the city milk dealers.

Per Cents. of Adulterated and Unadulterated Milk Found in the Boroughs of Manhattan and Brooklyn by a General Sampling (Raids) of Milk Without Regard to the Appearance or Lactometer Reading.

<i>Manhattan.</i>	Adulterated.	Unadulterated.	Calculated From.
1st. Quarter.....	26.9 per cent.	73.1 per cent.	457 samples
2d. Quarter.....	48.3 per cent.	51.7 per cent.	122 samples
3d. Quarter.....	23.3 per cent.	76.7 per cent.	107 samples
4th. Quarter.....	5.2 per cent	94.8 per cent.	324 samples
<i>Brooklyn.</i>			
1st. Quarter.....	41.1 per cent.	58.9 per cent.	382 samples
2d. Quarter.....	53.9 per cent.	46.1 per cent.	102 samples
3d. Quarter.....	9.0 per cent.	91.0 per cent.	44 samples
4th. Quarter.....	17.4 per cent.	82.6 per cent.	149 samples
Average for Manhattan.	24.9 per cent.	74.1 per cent.	.....
Average for Brooklyn..	30.3 per cent.	69.7 per cent.	.....
Amount of fines.....			\$7,340 00

Respectfully submitted,

JAMES PURVIANCE ATKINSON,
Chemist.

DEPARTMENT OF HEALTH, RESEARCH LABORATORY, }
NEW YORK, December 31, 1904. }

To the Assistant Sanitary Superintendent, Borough of Manhattan:

SIR—I have the honor to submit the following report upon the work of the Research Laboratory for the year 1904:

THE ROUTINE WORK OF THE LABORATORY.

Diphtheria and Tetanus Antitoxins.

The production of diphtheria antitoxin for the use of New York City and for some cities outside of New York has continued to be a very important function of the laboratory. The number of horses under treatment has averaged about 20. Tetanus antitoxin has also been regularly produced. Two horses have sufficed to produce the amount required.

Testing of Diphtheria-like Bacilli.

Cultures from suspected cases of diphtheria, which because of their long persistence in the throat or because of peculiarities, frequently require to be tested in order to discover whether they are true diphtheria bacilli or only harmless diphtheria-like bacilli. A considerable number of these cultures sent from the Diagnosis Laboratory have been tested during the past year.

Isolation of Glanders Bacilli.

From time to time during the year cultures have been made from horses suspected to have glanders.

The Examination of Croton Water.

Twice each week bacteriological examinations of Croton water have been made and the results compared with the conditions on the water shed as to the rainfall or drought.

Disinfection Tests.

Under the supervision of Dr. R. J. Wilson there are examined daily test bits of cord which have been infected with bacteria and left at each

room during disinfection. These tests not only give proof of the reliability of the disinfection, but also have an excellent moral effect upon the disinfectors. About 50 tests are examined daily. The method of liberating formaldehyde gas for room disinfection has been changed during the year. The process is described in a report submitted by Dr. Wilson.

The Pasteur Treatment for the Prevention of Rabies.

The Pasteur treatment has been given to a somewhat larger number of persons this year than on previous years. The sending of the prepared treatment to a distance has been continued and has given very satisfactory results. A report from Dr. D. W. Poor gives the number of cases treated. Important advances in the quick diagnosis of rabies have been made in the laboratory by Dr. A. W. Williams, and the brain tissue from many dogs has been examined.

Dr. WM. H. PARK,

Director of the Research Laboratory:

SIR—I have the honor to report as follows: The number of patients receiving the Pasteur treatment during 1904 was 83, distributed as follows:

Residents of New York receiving treatment at laboratory.....	22
Non-residents of New York receiving treatment at laboratory.....	13
Non-residents of New York to whom treatment was sent.....	48
	<hr/>
Total.....	83
	<hr/>

In addition treatment was sent for a number of dogs.

Number of animals examined and found to have been rabid.....	21
Number of animals examined in which rabies was not proven.....	24
	<hr/>
Total.....	45
	<hr/>

In 1903 76 patients were treated as follows:

Residents of New York.....	31
Non-residents of New York to whom treatment was sent.....	21
Non-residents of New York treated at laboratory.....	24
Total.....	76

In addition treatment was sent for a number of dogs.

Respectfully submitted,

D. W. POOR, M. D.,
Assistant Bacteriologist.

Original Investigations.

During the year a number of investigations were being carried on. The subject of *dysentery*, which was studied during the previous year, was continued and the bacilli found were more fully investigated, both as to their characteristics and location in the sick and well. From these studies developed an investigation of the nature of the agglutinins acting upon these bacilli and those allied to them.

A preliminary investigation on the possibility of *oysters* carrying *typhoid bacilli* has been carried to completion. Further work along the same lines is planned for 1905.

The investigations begun in 1900 on the *etiology of Variola* have been continued and *studies upon scarlet fever* have been begun. The peculiar bodies in certain cells of the central nervous system first described by Negri, but noted by us independently, have been further investigated, and by their detection a rapid means for establishing whether a dog was rabid or not devised. A study of the colon group of bacilli as occurring in the intestines of man was carried out by Mrs. Grace Van Everen Stoughton. It was planned to have her continue this investigation during 1905, but her sudden death compelled others to assume the work so well begun by her.

Stern's bactericidal test for the diagnosis of typhoid fever was thoroughly investigated and found to be useful in only a very limited percentage of cases. Studies upon the development of tetanus toxin were begun.

In November the study of the micro-organisms having a relation to pneumonia was begun in co-operation with the workers acting directly under the Commission on Acute Respiratory Diseases. The investigation as yet is so incomplete that the results already obtained will be left for the report of next year. The studies on the prevalence of influenza bacilli during the winter of 1904 revealed some interesting results.

WM. H. PARK, M. D.,
Director of the Research Laboratory.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 NO. 1237 FRANKLIN AVENUE, }
 BOROUGH OF THE BRONX, }
 NEW YORK, December 31, 1904. }

CHARLES F. ROBERTS, M. D.,
Sanitary Superintendent:

SIR—It was found at the beginning of this year that certain of the communicable diseases were prevailing in a marked degree, and the number of cases of diphtheria, measles and varicella in the borough far exceeded that of the previous year. Besides, this borough did not escape the wave of typhoid fever that swept over the State during the late summer and early fall months. The isolation of cases of contagious disease and the disinfection of infected premises has been carefully attended to. The number of cases of diphtheria, measles and varicella for November (first four weeks) are compared with the number of cases for January.

	Diphtheria.	Measles.	Varicella.
January, 1904.....	116	366	38
November, 1904.....	87	75	22

Number of visits made to cases of contagious disease shows a marked increase this year—

In 1904.....	19,420
In 1903.....	10,365
Cases treated with Diphtheria Antitoxin in 1904.....	389
Cases treated with Diphtheria Antitoxin in 1903.....	287
Persons immunized with Diphtheria Antitoxin in 1904.....	763
Persons immunized with Diphtheria Antitoxin in 1903.....	614
Cases of Contagious Disease reported in 1904.....	6,395
Cases of Contagious Disease reported in 1903.....	3,694

While there has been a larger number of cases of typhoid fever reported in 1904 than in 1903 the death rate from the disease has been lower this year. The number of deaths from the disease for the first eleven months of the year 1903 exceeded the number for the corresponding time for this year.

Tuberculosis.

The importance of this disease has been recognized throughout the year and all steps possible have been exerted to prevent the spread of infection.

Cases reported in 1904.....	943
Cases reported in 1903.....	869

Vaccinations.

There has been a considerable increase in the number of persons vaccinated, comparison being made with the number of vaccinations in 1903 as per following table:

Persons vaccinated in 1904.....	7,967
Persons vaccinated in 1903.....	6,821

Disinfecting Corps.

Strict attention has been paid this year to the fumigation of rooms and the disinfection of infected goods. A comparison is made with the preceding year in the number of houses visited for disinfection and the number of rooms disinfected as per following table:

Houses visited in 1904.....	4,992
Houses visited in 1903.....	2,215
Rooms disinfected in 1904.....	7,801
Rooms disinfected in 1903.....	4,718

Medical School Inspections.

The comparison of our work in 1904 with 1903 shows a falling off in the number of visits to schools, children examined and exclusions. The reason for the less number of visits to schools is that our force of inspectors is less than last year. The lessened number of children examined and of exclusions is undoubtedly due to the fact that the various means which have been adopted by the Department for the education of the people up to its requirements has resulted in cases similar to those which were examined and excluded in former years, being kept at home until fit for school duties.

Visits to schools in 1904.....	4,119
Visits to schools in 1903.....	4,873
Children examined, 1904.....	544,592
Children excluded, 1904.....	808
Children examined, 1903.....	793,045
Children excluded, 1903.....	2,165

Nurse.

The work done by the School Nurse in the number of visits to schools and the diseases treated shows a considerable increase. It has, however, not been necessary for her to visit as many homes of parents, as the following table will show:

Houses visited in 1904.....	443
Houses visited in 1903.....	416
Schools visited in 1904.....	625
Schools visited in 1903.....	417
Diseases treated in 1904.....	12,931
Diseases treated in 1903.....	9,211

Disinfecting Plant.

The construction of the excellently equipped disinfecting plant at the foot of East One Hundred and Thirty-second street has proved a great advantage to us during the year, and all goods from infected premises have been disinfected thereat instead of being carted the long

distance to Sixteenth street, as in previous years. The following table shows the comparison in goods disinfected in 1903 and 1904:

Goods disinfected in 1904.....	4,796 pieces
Goods disinfected in 1903.....	4,700 pieces
Goods destroyed in 1904.....	736 pieces
Goods destroyed in 1903.....	864 pieces

Blankets used in the ambulances are now being disinfected at the plant.

Ambulance Service.

The ambulance service in this borough has been much improved during the year, and the addition of a coupe and the fact that the ambulances and the horses are housed in the same building (Bronx Department Stable) have proved of advantage. A comparison of the number of persons removed to Contagious Diseases Hospitals is made in the following table:

Persons removed in 1904.....	435
Persons removed in 1903.....	103

It will be remembered, relating to the above comparison, that our ambulances now cover the area of Manhattan Borough above One Hundred and Tenth street; in previous years The Bronx Borough only was covered.

I would add that practically all the Diphtheria as well as other cases of contagious diseases which are removed now go to Riverside Hospital and the long journeys to the Willard Parker Hospital in Sixteenth street are no longer taken by the ambulances.

Stable and Wagons.

Two wagons have been added to the number used in the collection and return of infected goods, bringing the number up to four, all are kept at the Department Stable, whereat the six horses of the Department are housed. The fact that the stable is near the Disinfecting Plant is an advantage.

Veterinarian.

There has been a large decrease in glanders in this borough during the year, and the number of horses destroyed has been considerably less than in 1903, as shown by the following table:

Horses destroyed in 1904.....	48
Horses destroyed in 1903.....	92
Animals examined in 1904.....	837
Animals examined in 1903.....	1,370

In connection with the above it may be stated that during a portion of the year 1903 two veterinarians were employed in this borough instead of one, as in the present year.

The total number of inspections and reinspections in all the divisions of the Department in this borough for the year 1904 shows a considerable increase over that of 1903, as per the following comparison:

Total number of inspections and reinspections in 1904.....	67,050
Total number of inspections and reinspections in 1903.....	56,812
Increase in number of inspections and reinspections in 1904.....	10,238

Respectfully submitted,

GERALD SHEIL, M. D.,

Assistant Sanitary Superintendent.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 NO. 374 FULTON STREET, JAMAICA, }
 BOROUGH OF QUEENS, }
 NEW YORK, December 31, 1904. }

To the Sanitary Superintendent:

SIR—I have the honor to submit the following general report of work performed by the Sanitary Bureau in the Borough of Queens for year ending December 31, 1904:

Sanitary Inspections.

This includes investigation of Citizens' Complaints, Visits to Contagious Diseases, Inspections of Premises, Inspections of Schools,

Inspections of Food and Offensive Trades, Inspections of Mercantile Establishments, Issuance of Employment Certificates and work of the Summer Corps Nurses.

The total number of inspections and reinspections was 36,172, as compared with 38,594 for 1903.

The number of inspections and reinspections are as follows:

Sanitary and Food Inspections.....	14,642
Inspections by Sanitary Police.....	5,172
Visits to contagious diseases by Medical Inspectors.....	11,146
Visits to contagious diseases by School Nurses.....	2,055
Visits to contagious diseases for disinfection.....	1,885
Inspections and re-inspections by Veterinarian.....	1,272
<hr/>	
Total.....	36,172
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Citizens' complaints received.....	1,376
Inspectors' complaints received.....	524
Number of vessel permits issued.....	84
Number of miscellaneous permits issued.....	1,165
Number of employment certificates issued.....	713
Number of orders complied with.....	922
Number of orders still pending.....	228
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School Inspectors.

I have insisted that the Medical School Inspectors should thoroughly examine every child, with the result that 908,780 children were examined and 1,153 excluded, as against 580,748 examined and 717 excluded in 1903.

There are 83 schools in the borough, with an average attendance of 33,000 pupils.

Contagious Diseases.

There has been a decrease in the following contagious diseases: Diphtheria, scarlet fever, whooping cough, and an increase in measles, tuberculosis, typhoid fever, cerebro-spinal meningitis and chickenpox.

Number of contagious diseases reported:

	1904.	1903.
Diphtheria	517	660
Scarlet Fever.....	323	398
Measles	848	667
Tuberculosis	444	388
Typhoid Fever.....	133	119
Parotiditis	1	..
Cerebro-spinal Meningitis.....	8	..
Chicken-pox	147	120
Whooping Cough.....	31	63
Small-pox	1	1
Erysipelas	3	2
Total.....	2,456	2,418

This shows an increase over 1903 of 38.

In every case of typhoid fever an Inspector visits the premises, and a thorough sanitary inspection is made, and every endeavor made to trace the infection.

Vaccinations.

Vaccinations are performed in all schools, at this office and at the home when requested.

Total number of vaccinations performed 1,546, of which about 85 per cent. were in schools.

Antitoxin.

This Department urgently requests physicians to use antitoxin in all cases of diphtheria. If the doctor in charge wishes, an Inspector of this Department will be sent to administer it.

Number of cases treated with antitoxin.....	40
Number of persons immunized.....	315

Glanders.

There were 61 cases of glanders reported and the horses immediately destroyed, and the premises thoroughly disinfected or the buildings destroyed.

Nurses.

During the year, for the first time, school nurses were assigned to this borough, doing work in the First and Second Wards.

The number of diseases treated by them during the school year was 40,100.

Summer Corps.

During this year, for the first time, a summer corps, consisting of four Medical Inspectors and one Nurse, was established. They visited 1,912 houses and 4,728 families. They treated 16 sick children for diarrhoeal complaints, distributed 906 circulars and 71 St. John's Guild tickets.

One Inspector was on duty at this office from 4 P. M. to midnight each day to attend to any calls for summer corps work after office hours.

During the summer a Medical Inspector and a Sanitary Policeman, under the personal supervision of myself, were on duty at the Rockaways, with the result that the sanitary condition was never so good, and less complaints for non-removal of garbage were received at this office.

Cow Stables.

All the cow stables have been thoroughly inspected and all are in a good sanitary condition.

Ponds.

There were 27 pond orders left over from last year on ponds, which have been referred to the Corporation Counsel.

Disinfection.

On June 1 the stables of the Department were established on the Department farm, on Jamaica avenue, Flushing, and the horses, ambulances and wagons were transferred from the leased premises at Ham-

ilton and Fulton avenues, Jamaica, to the renovated buildings at the farm. Four of the six horses now in use should be replaced by new ones, the heavy work of traveling with ambulance and goods wagons through the borough and to and from Kingston Avenue Hospital, in Brooklyn, having unfitted them for proper service, in fact, two of them were condemned several months ago.

The placing in operation of the temporary disinfecting plant, which has been constructed on the farm, has been interfered with for several months because of delays in fitting up the boiler and chest, building of shed and coal bins, testing of boiler, employment of an engineer and the making of water connections. It is expected that all the difficulties in the way of its operation will be overcome during the current month, and that by February 1 next all clothing, bedding, etc., will be disinfected there instead of being taken to Kingston Avenue Hospital, thereby saving much time and inconvenience to the Department and the public.

The number of disinfections performed were 1,885, and there were 3,557 pieces of goods removed.

Culture Stations.

Since April, 1902, there have been a number of culture stations located in different sections of the borough. The cultures have been collected from these stations and taken to the Laboratory in Manhattan. Owing to the early hours of collection, the physicians have availed themselves of this method of diagnosis to only a limited extent, leaving most of their work to the inspectors of the Department. Within the past few weeks a more extensive list of culture stations has been established and those already established have been put in better order, and an incubator has been installed in the drug store of L. A. Behn, No. 309 Fulton street, Jamaica, making this the headquarters of the collection route in the Borough of Queens.

The collections are made at a later hour and the incubator is open until 10.30 P. M. for those making cultures too late for the collector. It is believed that this system will be much more useful to the medical profession of the borough than the arrangement formerly in vogue.

Owing to the fire in the Queens County Court-house and the removal of the records from the District Attorney's office to the different places, and the confusion resulting therefrom, it is impossible at the present time to get a complete record of the criminal actions instituted by the Department of Health.

Respectfully submitted,

JOHN P. MOORE, M. D.,

Assistant Sanitary Superintendent.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 NOS. 54 AND 56 WATER STREET, }
 STAPLETON, BOROUGH OF RICHMOND, }
 NEW YORK, December 31, 1904. }

CHARLES F. ROBERTS, M. D.,

Sanitary Superintendent:

DEAR SIR—I have the honor to submit the following report of the work of this Department for the year 1904, in compliance with your request in your letter of November 23.

Contagious Disease Division.

The contagious diseases for the year 1904 exceeded the number reported in previous years, the cause of this being an increase in the number of cases of diphtheria and measles. Typhoid fever in the Borough of Richmond has been decidedly on the decrease, and upon examination of the cases reported we found that very few cases had their origin in this borough, being contracted at other places and developing after their return to this borough.

There has been a steady increase in the number of cases of tuberculosis reported. These cases have been inspected by the Medical Sanitary Inspectors and the household effects have been taken to the disinfecting plant for sterilization, the same as in other cases of contagious disease.

Disinfection.

The establishment of a disinfecting plant at the County Farm has been of the greatest benefit to the public generally. Physicians all over the island have been availing themselves of the opportunity of having all goods from infected houses taken to the plant, especially from private families. The work of the plant has been taxed to its full capacity and has been of the most satisfactory character. The distances covered by this work is very extensive, and I would recommend that the working force at the plant be increased by an additional driver and two additional men, so that it could be kept open at all hours for disinfection. As the work now is carried on no goods can be disinfected after four o'clock. In many cases it is necessary to remove goods at once, and it is my opinion that these goods should be disinfected as soon as the case is removed, as it is a difficult matter to impress on the public the necessity of disinfecting, and they will not comply with the rules requiring them to disinfect. We are using formaldehyde in all cases, and are disinfecting every case of contagious disease. I believe that this work is fully appreciated by the medical profession throughout the borough.

The Ambulance Service.

The addition of an ambulance for the transportation of contagious and infectious diseases has very materially helped us in our work, and we have removed more cases this year than during any year since consolidation.

I would recommend that an ambulance driver be appointed, that he may be on duty night and day to attend to any emergency case that may be reported after office hours.

All cases of contagious and infectious diseases are removed to the S. R. Smith Infirmary, but this is most unsatisfactory, as the infirmary closes its wards for repairs, on account of mixed infection, etc., which necessitates the removal of patients suffering from contagious diseases to North Brother Island or Kingston Avenue Hospital. I believe this to be a very great hardship, as they are transported many miles by land and water.

We have acquired a large tract of land at the County Farm, where a hospital for contagious diseases could be readily constructed, in a most isolated and sanitary locality, which would be of great service to the community.

Vaccination.

Systematic vaccinations in the public schools has been carried on by the Medical School Inspectors and there are no school children attending the public schools in the thickly populated districts of the island that have not been vaccinated. There are a few cases in the outlying schools that have not been vaccinated, but the recent appointment of a Medical School Inspector will facilitate the work of vaccination in the schools throughout the county.

Medical School Inspection.

Every school in the populated portions of this borough is inspected once a day by a Medical Inspector from this Department. The additional Medical Inspector, recently assigned, will from now on visit the schools that heretofore were not covered in the outlying district.

School Nurse.

The District School Nurse appointed in this borough has done most excellent work, but the territory is so large that she has only been able to cover five schools, which I considered needed her services most.

I would recommend that at least three additional nurses be appointed for this borough.

Culture Stations.

The culture stations in the Borough of Richmond have been of great service to the physicians, enabling them to make an early diagnosis, and the addition of an incubator at a central location has aided physicians in sending cultures late at night, and getting a report on the following day, which is greatly appreciated. The stations are operating to my satisfaction and that of the profession generally.

Antitoxin.

Very great demands for free antitoxin are being made upon the Department, and it is being depended upon generally for immunization and treatment.

Milk Inspection.

Dr. P. K. Nichols, Veterinarian, has been doing very thorough work in the inspection of dairies, and I believe, with few exceptions, they are in first class condition. A number of small dealers have been obliged to abandon their business on account of the regulations of this Department, which has been of great benefit. The dairies have been brought up to the requirements of the Department, and proper facilities for handling milk provided.

In conclusion, I would respectfully recommend that this office be kept open at all hours, for the distribution of antitoxin and removing cases of contagious diseases.

Very respectfully submitted,

JOHN T. SPRAGUE,
Assistant Sanitary Superintendent.

DEPARTMENT OF HEALTH, BOROUGH OF MANHATTAN, }
DECEMBER 31, 1904. }

CHARLES F. ROBERTS, M. D.,
Sanitary Superintendent:

SIR—I respectfully forward the annual report of the Willard Parker, Riverside and Kingston Avenue hospitals.

During the past year the following changes occurred in the Hospital Staffs:

Dr. P. J. Murray, Resident Physician of the Kingston Avenue Hospital, resigned January 1, and was succeeded by Dr. Beery, Resident Physician of the Willard Parker Hospital. Dr. Eberle, Assistant Resident Physician, was transferred from the Willard Parker Hospital as assistant to Dr. Beery.

Dr. Burckhalter, Resident Physician of the Willard Parker Hospital, was transferred during the middle of the year to the Contagious Division and Dr. Lynah was appointed Acting Resident Physician; Dr. Throne taking the position of Assistant.

Dr. Watson was made Resident Physician at the Riverside Hospital and Dr. Helgeson his Assistant.

Early in the year Medical Inspectors of the Department Drs. Studdiford, Richardson and Koester were assigned to the three hospitals as Attending Physicians, while Dr. Kline was assigned to the Riverside Hospital, and placed in charge of the Tuberculosis Pavilions and the Laboratory.

The Superintendents of Nurses, Miss Henry and Miss Smith, of the Riverside and Willard Parker Hospitals, were interchanged, and the Nurses were graded, creating two divisions—Graduated and Auxiliary Nurses; at the same time the salaries were increased from thirty and thirty-five to forty dollars. This grading and increase of salaries made a decided improvement in the Nurses and the nursing.

The most noteworthy incident occurring during the past year was the Slocum disaster on the fifteenth of June. A full report was made at the time of this awful calamity, but I can not pass it by without expressing my personal approbation of all the employees of the Riverside Hospital, who cheerfully gave their aid to the unfortunate victims. It was a trying ordeal and one which will be a lasting honor to the rescuers.

The usual work, painting and repairing, permanent improvements, etc., is set forth at length in the appended reports.

I respectfully recommend the following changes:

Kingston Avenue Hospital.

1st. An iron fence around the ground, with watchman's gate on the Kingston avenue side.

2d. Filling in the ground to correspond with the requirements of the topographical map.

3d. Raising the walls of the sewage tank to correspond with the grade and to overcome the overflow in case of flood.

4th. That the sterilizing chest in the old boiler house be removed and that the space allotted to the chest be added to the laundry.

5th. That a new stable and carriage house be built and that the old stable be raised and turned into a dormitory.

6th. That new plumbing be installed in the five isolating cottages.

7th. That Rutland road and Kingston avenue be paved.

8th. That clothes, gown and store rooms be installed.

9th. That a new laundry building be constructed.

Willard Parker Hospital.

1st. That a boiler house and coal sheds be erected.

2d. That the present Vaccine Laboratory be added to the stable.

3d. That the hospital be entirely reconstructed.

4th. That the Research Laboratory be reconstructed for a dormitory.

5th. That all the walks and roads be asphalted.

6th. That galleries be constructed as outing places for the patients.

Reception Hospital.

1st. That canopies be erected, extending far enough beyond the walls of the hospital to make them satisfactory as a protection for both patients and nurses.

2d. That a waiting room be constructed.

3d. That the entire building be pointed up and repainted.

4th. That a store room and a linen room be constructed in the passageway between the two buildings.

5th. That sufficient ground be obtained from Minturn Hospital to enable boats to use the sluiceway at present on their grounds.

Respectfully submitted,

G. T. STEWART, M. D.

Superintendent of Hospitals.

DEPARTMENT OF HEALTH,
 WILLARD PARKER AND RECEPTION HOSPITAL,
 BOROUGH OF MANHATTAN,
 DECEMBER 31, 1904. }

G. T. STEWART, M. D.,

Superintendent of Hospitals:

SIR—I have the honor to report as follows:

As a preliminary to the annual statistical reports for the year 1904, I would call your attention to the following permanent improvements made during the year:

1st. A new picket fence has been built on the north side of the grounds, from the Street Cleaning Building to the end of the Morgue.

2d. Roof garden has been placed on the roof of the Willard Parker boiler house. Two portable swings are on the same.

3d. Wards 3 and 5 (Annex) have been demolished, to make place for the new Administration Building.

4th. New outside lamps (Welsbach) have been placed on the different buildings in grounds.

5th. An office for the Architects and Inspectors has been constructed.

6th. Boiler at Willard Parker Hospital—

A. Repair to bridgework on Boiler No. 1.

B. New tubes have been placed in Boiler No. 1.

7th. Boiler at Reception Hospital—The entire steam plant has been overhauled and repaired, and put in first class condition.

8th. Reception Laundry—New improved laundry machine has been placed in Laundry, and the other laundry machinery repaired and put in first class order.

9th. Fire apparatus, etc., has been put in first class condition.

10th. Vaccine Laboratory and Calf Stable have been renovated and painted.

11th. New locks were placed on Plague Laboratory.

12th. New shelving was placed in all the laboratories where needed.

13th. Ward 1 (Annex) has been overhauled and painted and put in first class condition.

14th. The Annex (Avenue C House)—

A. The halls have been painted.

B. The Carpenter Shop has been installed in the store.

15th. Ambulance and Disinfecting Station have been put in first class condition.

16th. The Crematory has been placed in good shape.

17th. Improvements, Willard Parker Hospital—

A. Painted throughout.

B. All wards have been renovated. New supplies furnished.

C. Twelve electric fans have been installed and put in operation.

D. Modern toilet and bath for Doctors' bath room.

E. Modern plumbing in patients' Admission Office.

F. Main Office—

1st. New standing desk.

2d. Large stationary cabinet.

3d. New marine clock.

4th. Plate glass put in door in place of wooden panels.

G. Six new ward screens.

H. All plumbing on premises has been overhauled.

I. Ceiling of the west room on the sixth floor has been repaired.

J. Sinks in kitchen pantry have been relined.

K. New portable platform scale.

L. Repairs to elevator and shafts have been made, to make the same fireproof, and new locks supplied to elevator.

M. Refrigerators—

1st. New odorless refrigerator for the second floor.

2d. New refrigerator for the Nurses' dining room.

N. New zinc covered tables have been placed in the kitchen and laundry.

O. 1st. New food carriage.

2d. Rapid potato masher.

3d. Two large coffee and tea urns for the Helps' dining room.

- P.* Closet for blankets and gowns for ambulance use.
- Q.* The range has been thoroughly overhauled and put in first class condition.
- R.* Kalameined doors have been placed throughout the halls.
- S.* New ecru Holland shades have been put on all the windows.
- T.* The Nurses' sitting room has been furnished.
- U.* The Matron's apartments have been repainted and refurnished.
- V.* Surgical instruments for ear operations.
- W.* 1st. New aseptic instrument cabinet—
 - a.* Ice cooler in each ward.
 - b.* Hospital pails in each ward.
- 2d. New large Arnold sterilizer.
- X.* Four settees for visitors.
- Y.* The roof has been repaired.
- Z.* Miscellaneous—
 - 1st. Linoleum laid in patients' Admission Office.
 - 2d. Linoleum laid in Main Office.
 - 3d. Linoleum laid in pantry adjoining Nurses' dining room.
 - 4th. The drug rooms have been remodeled, renovated and put in good condition.
 - 5th. Six new rugs.
- 18th. Improvements, Reception Hospital—
 - A.* Painted throughout.
 - B.* Twelve enameled cabinet closets have been installed.
 - C.* All the wards have been renovated; new supplies furnished.
 - D.* Plumbing put in first class condition.
 - E.* Ventilators have been repaired.
 - F.* Fourteen awnings re-covered and one new awning.
 - G.* Six new screens have been provided.
 - H.* New American flag.
 - I.* Kitchen roof repaired and painted.
 - J.* New office clock.
 - K.* New range.

- L.* New refrigerator for office, with glass shelves.
- M.* New shelves placed in each ward.
- N.* New Holland shades have been put up.
- O.* Kitchen and dining room repainted and the floors covered with matting and linoleum.
- P.* The establishment of a gown ward.
- Q.* Portable scales have been put in first class order.
- R.* Two outside lamps.
- S.* Six (6) new germ-proof coats.
- T.* Woodwork repaired.
- U.* Saddles to the entrance of wards reset and repaired.
- V.* Mason and stonework put in first class order.

Reception Hospital is now in first class condition.

19th. Improvements—Stable—

- A.* Renovated and repaired.
- B.* New plastic roof.
- C.* Two (2) sets of ambulance harness.
- D.* New sink.
- E.* New gas fixtures.
- F.* New watering trough.
- G.* Twenty horses have been clipped.
- H.* Rubber boots for the stablemen.
- I.* Ambulances, coupes and disinfecting wagons have been repaired and painted, and put in good order.
- J.* Wagon floor has been recemented.
- K.* Elevator repaired and put in first class order.
- L.* Twenty-four new blankets, "Blue Stone."
- M.* Harness—
 - 1st. Coupe set.
 - 2d. Six sets of single harness.
- N.* Two new vans.
- O.* One bay horse.

20th. The Stable is now in first class condition.

Respectfully submitted,

H. L. LYNAM, M. D.,

Acting Resident Physician.

DEPARTMENT OF HEALTH, RIVERSIDE HOSPITAL, }
 NORTH BROTHER ISLAND, }
 December 31, 1904. }

Dr. G. T. STEWART, Superintendent of Hospitals:

SIR—I have the honor to submit the following report of all the building and construction carried on at the Riverside Hospital, North Brother Island, during the year 1904.

Construction of pier extending from west side of island into East River.

Completion of Nurses' Home.

Hanging of shades in Home.

Finishing floors in Home.

Installation of fire extinguishers in Home and stable.

Connection of Home and stable with present alarm system on Island.

Installment of electric light wires from switch-board to Home.

Construction of new roads, walks and lawns around Home.

Construction of laundry building.

Construction of coal house.

Moving and reconstructing two brick houses used at present for disinfecting station and drug room.

Construction of scale house.

Reconstruction of hothouse.

Completion of, and installing engine and disinfector and other fixtures in One Hundred and Thirty-second street dock building.

Remodeling and painting pavilion No. 1 and painting pavilions Nos. 3, 4, 5, 6.

Painting pavilions Nos. 8, 9, 10, 11 and 12.

Painting and renovating rooms over stable.

Construction of store room at south end of island.

Laying new floor in store room.

Repair of laundry machine.

Construction of derrick on dock.

Repairing of three ambulances.

Repairing roof of boiler house.

Repairing range in kitchen.
 Repairing large refrigerator in kitchen.
 Laying new floor in pavilion No. 5.
 Paving in front of ice house.
 Laying brick walk from office to ice house.
 Laying cement in front of office.

Truly yours,

K. ALFRED HELGESON, M. D.,
Acting Resident Physician, Riverside Hospital.

RIVERSIDE HOSPITAL, NORTH BROTHER ISLAND, }
 NEW YORK, December 31, 1904. }

To the Superintendent of Hospitals:

SIR—I have the honor to submit the following report of the work performed at Riverside Hospital on North Brother Island, Borough of The Bronx, during the year 1904, at the same time giving an explanation of just how the patients are received and the line of treatment followed after being admitted to the institution.

Patients are admitted to the hospital in one of the following ways, viz., either headquarters at Fifty-fifth street and Sixth avenue; headquarters at Franklin avenue, Borough of The Bronx; by one or more of the Diagnosticians, or in an emergency, through an antitoxin inspector. On receiving notice at the hospital, the steamship "Franklin Edson," with a physician and a nurse aboard, is sent either to the Reception Hospital, foot of East Sixteenth street, or the Health Board dock, foot of East One Hundred and Thirty-second street, the two places from which patients are transferred. They are then taken aboard and placed in one of the four isolating rooms, according to the character of the contagion, the rooms being used for diphtheria, scarlet fever, measles, and tuberculosis. On approaching the island a system of whistles is used by the captain of the steamer, which indicates to the men in charge of the ambulances the character of the contagion he is expected to transfer to the wards; one whistle indicating No. 1, or diphtheria; two long whistles No. 2, or scarlet fever; three long

whistles No. 3, or measles, there being an ambulance for each disease. The object of having these different signals is to have the ambulance or ambulances on the dock when the steamer arrives, so that no unnecessary time is lost in the transfer of patients to their respective wards. Before leaving the steamer, however, the patients are seen by either the Resident or Assistant Resident Physician, and are assigned to different wards. On being admitted to the ward, the patient is taken by the nurse or orderly in charge and given a bath and then placed in bed ready for physical examination. After being examined all patients are given an immunizing dose of antitoxin, 2,000 units being the usual immunizing dose in each case. Each morning after being admitted, patients receive a bath, and are seen three times daily by the Resident Staff and once daily by the Visiting Physician. After remaining in the institution for five weeks—the necessary time for desquamation to take place in scarlet fever—patients are prepared for final inspection before being discharged, a special inspector being sent for that purpose from headquarters, whose duty it is to pronounce the patient free from contagion. If his report is favorable the patient is removed from the ward to the bath room, given a bichloride bath and given his clothing, which has been thoroughly disinfected, and is then allowed to return to his home.

The parents of these children are notified by telegram of their condition, and if dangerous, are allowed to visit them any hour of the day or night, but unless the diagnosis be doubtful, are allowed to visit on the following days only:

Scarlet fever—Sundays, Wednesdays and Fridays, 10 to 12.

Measles and mixed infections—Tuesdays, Thursdays and Sundays, 10 to 12.

Tuberculosis—Tuesdays and Thursdays, 10 to 12; Sundays, 1 to 3.

The following rules for nurses and physicians are printed and placed in each ward in a conspicuous place and are strictly observed:

“It will be the duty of the physician in charge of each ward to examine specimens of urine of all the bed patients twice during the week. The specimens are to be collected every Sunday and Wednesday night and are to be examined on the following morning. All

specimens showing albumen are to be examined every second day and such specimens are to be sent to the laboratory for microscopical examination.

"Smears of all vaginitis cases are to be taken and sent to the laboratory to be examined. It is necessary to take two smears of each case and to wrap them in a slip of paper, upon which is the name of the patient. Labels pasted on the slide interfere with the staining of the slide.

"All patients admitted who do not show a recent vaccination are to be vaccinated upon admission.

"Every complication developing in the course of the disease in the various services is to be noted on the history charts at the time of its first appearance. The course and termination of the complication is also to be recorded on the history charts.

"All excoriations, injuries, etc., present on admission are especially to be noted and charted on the history sheet."

The following rules are to be observed by nurses:

"1. Under no circumstances are nurses, orderlies or ward helpers to make any statements to the parents of children sick with contagious diseases as to their condition, or as to the time of their discharge from the hospital. They shall refer all applicants for such information to the Resident Physician.

"2. Patients must be treated with civility and respect; threatening and harsh language must not be used toward them.

"3. The senior nurse of the ward shall have the entire charge and responsibility of the ward and shall be responsible for all articles lost or destroyed therein, and new ones will not be supplied unless old ones are condemned.

"4. The senior nurse of a ward shall immediately notify the Resident Physician upon the decease of any patient, and the body of said deceased patient must not be prepared for removal from the ward until life has been declared extinct by the Resident Physician. The nurse must place the full name, age and number of the ward on the body before removal from the ward.

" 5. The senior nurse shall see that a card of admission, correctly filled out, is sent from the office for each new patient, and that these cards are kept in the ward until the patient is discharged.

" 6. The senior nurse of the ward shall keep an inventory of all articles belonging to that ward, comparing it with the one made by her predecessor, and report any discrepancy to the Superintendent of Nurses.

" 7. The senior nurse of the ward shall be responsible for all medicines and treatment and shall see that the prescription book is sent at the proper time to the drug store and that the medicines are correctly returned. They shall not change nor allow any other person to change any medicine from one receptacle to another, or affix or change any label on any receptacle containing medicine, under penalty of suspension. Medicine closets are to be kept locked and the nurse shall carry the keys.

" 8. It shall be the duty of the senior nurse to have the wards ready for inspection at 10 A. M.; to supervise and direct the ward helpers; to see that the beds, linen, etc., are kept scrupulously clean and that all parts of the wards are thoroughly ventilated, and to regulate the temperature as the Resident Physician directs.

" 9. The senior nurse shall see that all money and valuable property belonging to patients is safely deposited in the office. A correct list shall be kept (in the clothes book) of all clothing belonging to the patients, and on the death of a patient, any article of value found upon the patient shall be removed and sent as soon as possible to the office.

" 10. The senior nurse shall see that all patients dangerously ill are attended by a priest or by a Protestant clergyman, as they may desire. The nurse will notify the Episcopalian minister of all dying children in time for him to visit them before death.

" 11. Nurses shall not visit other wards except in the performance of their duties. They shall not receive visits in the wards from friends or other persons.

" 12. Nurses shall see that no alcoholic liquors, medicines or foods are given to a patient without permission from the physician, and if such liquors, food or medicines are brought in by visitors they shall be confiscated and the facts reported.

" 13. Nurses shall take the temperature, pulse and respiration of each patient immediately after admission to the ward.

" 14. The nurses shall report to the Superintendent of Nurses any discourtesy shown them by any one while in the discharge of their duties.

" 15. Nurses shall see that the name and address of each patient and of each patient's friend (if any exist, and if not, it shall be so stated) is plainly written in ink on the back of his or her card.

" 16. No orders shall be received from or through patients.

" 17. Any serious change in the condition of a patient must be immediately reported to the Resident Physician.

" 18. The nurse must send with a patient transferred from one ward to another a correct list of clothes worn on admission, with the card and chart of the patient.

" 19. All ward supplies will be given out once a week (on Tuesday morning), with the exception of clothes for the wards. The nurses will check them off when received in the ward.

" 20. The telephone must not be used for city calls during duty hours.

" 21. The nurses must mark all the bundles of soiled clothes going to the laundry with the ward number, tied in a sheet, and disinfected with carbolic 1-20.

" 22. Orders for new supplies must be accompanied by the articles condemned and a list of same. If the order is to increase the stock already on hand, it must be so stated.

" 23. The quantity and kind of each article ordered must be stated.

" 24. Nurses must see that the proper receptacles, plainly marked with the number of the ward, are sent with each order for supplies."

Fumigation—Boats and ambulances used in the transfer of cases are immediately fumigated after disposing of the patient.

There are at the present time six pavilions in use for contagious diseases at this hospital, viz.: No. 1, a large brick pavilion used exclusively for scarlet fever. This pavilion contains four large wards and will accommodate about one hundred patients. These wards are all light and well ventilated. Pavilion No. 3, used for adult female scarlet fever only, accommodates about twenty beds. Pavilion

No. 4 is used for scarlet fever and diphtheria, and will accommodate about twenty patients. Pavilion No. 5 is used exclusively for diphtheria, and will accommodate about twenty-six patients. Pavilion No. 6 is used for infant and adult female measles, and will accommodate about twenty-four patients. Pavilion No. 8 has four wards, known as A, B, C and D. Eight A is used as an operating room; 8B is used for scarlet fever and measles; 8C is occupied by measles and diphtheria, and 8D is used for male adult measles. All of these wards are light and well ventilated, and each contains a wash room and bath for the exclusive use of patients. Physicians and visitors on entering these wards are required to wear a gown to cover the body and a hood for the head, there being gowns marked for each class of contagion in each of the different wards. These gowns are not worn a second time without first having been fumigated and laundered.

Among the improvements in the past year is a laboratory thoroughly equipped and in charge of Dr. Klein, where all bacteriological work for the hospital is done. I can conscientiously say that the past year has been a most satisfactory one to the institution. Not only has the work in the wards been very large, but results have been most gratifying, as you will see from the medical report attached.

The total number of patients treated in the institution during the year 1904 was 2,408, an increase of 725 over the number treated in 1903. Of this number there were 899 cases of scarlet fever, 711 cases of measles, 90 cases of diphtheria, 58 cases of scarlet fever and diphtheria, 65 cases of measles and scarlet fever, 60 cases of measles and diphtheria, 5 cases of measles and pertussis, 1 case of measles, diphtheria and pertussis, 2 cases of varicella and scarlet fever, and 1 case of scarlet fever, measles and diphtheria.

The total number of deaths, including tuberculosis, for the year was 359, a death rate of 14 9-10 per cent., which is 1 per cent. less than the year 1903.

Considering the condition of the patients and the sanitary surroundings from which 90 per cent. of them were removed, the results obtained are unquestionably good.

Respectfully submitted,

E. J. RICHARDSON, M. D.,
Visiting Physician.

Report of Cases, Riverside Hospital, January 1, 1904, to December 31, 1904.

		Ages.			
		Under 1 Year.	1 to 5 Years.	5 to 10 Years.	Above 10 Years.
Scarlet Fever.					
Total number of cases admitted as scarlet fever.....	899				
Number of cases remaining straight scarlet fever until dis- charged	812	3	206	296	307
Number of cases developing diphtheria and transferred to scarlet fever and diphtheria.....	43	1	26	14	2
Number of cases developing measles and transferred to scarlet fever and measles.....	41	..	30	11	..
Number of cases developing measles and diphtheria and transferred to scarlet fever, measles and diphtheria....	1	..	1	..	..
Number of cases developing varicella and transferred to scarlet fever and varicella.....	2	..	2	..	..
Number of deaths.....	75				
Number of deaths during the first 24 hours after admission...	17				
Complications—					
Otitis.....	69				
Mastoiditis	3				
Arthritis	46				
Cervical adenitis (incised)	29				
Nephritis	18				
Transient albuminuria.....	110				
Broncho-pneumonia.....	20				
Lobar pneumonia.....	8				
Heart murmurs:					
Haemic.....	9				
Systolic apex, transmitted to axilla.....	16				
Presystolic	1				
Miscellaneous:					
Empyema.....	3				
Erysipelas.....	2				
Peritonitis	1				
Pericarditis	1				
Meningitis	3				
Noma.....	1				
Vaginitis.....	39				
Septic cases.....	27				
Measles.					
Total number of cases admitted as measles.....	711				
Number of cases remaining straight measles until discharged	678	46	255	117	260
Number of cases developing diphtheria and transferred to measles and diphtheria.....	18	1	16	1	..
Number of cases developing scarlet fever and transferred to measles and scarlet fever.....	12	2	7	2	1

		Ages.			
		Under 1 Year.	1 to 5 Years.	5 to 10 Years.	Above 10 Years.
Number of cases developing pertussis and transferred to measles and pertussis.....	2	..	2	..	..
Number of cases having recovered from measles and developed scarlet fever.....	1	1	..	..	..
Number of deaths.....	73				
Number of deaths during the first twenty-four hours after admission.....	4				
Complications—					
Broncho-pneumonia.....	63				
Lobar pneumonia.....	2				
Otitis media.....	55				
Mastoiditis.....	3				
Heart murmurs :					
Hæmic.....	7				
Systolic apex, transmitted to axilla.....	5				
Aortic regurgitation.....	1				
Pulmonic stenosis (?).....	1				
Colitis.....	48				
Miscellaneous :					
Empyema.....	2				
Pleurisy.....	4				
Tubercular pneumonia.....	1				
Meningitis.....	3				
Vaginitis.....	15				
Urethritis.....	6				
Pericarditis.....	1				
Ludwig's angina.....	1				
Ulcerative stomatitis.....	3				
Noma.....	2				
Arthritis of shoulder, elbow and knee.....	1				
Diphtheria.					
Total number of cases admitted as diphtheria (including cases transferred from Willard Parker in February and March).....	90				
Number of cases remaining straight diphtheria until discharged.....	88	..	45	24	19
Number of cases developing scarlet fever and transferred to scarlet fever and diphtheria.....	1	..	1	..	..
Number of cases having recovered from diphtheria and developing scarlet fever.....	1	..	..	..	1
Number of deaths during first twenty-four hours after admission.....	5				
Number of tube cases.....	28				
Number of croup cases (not tubed).....	8				

		Ages.			
		Under 1 Year.	1 to 5 Years.	5 to 10 Years.	Above 10 Years.
Complications—					
Broncho-pneumonia.....	7				
Otitis media.....	4				
Nephritis.....	3				
Transient albuminuria.....	8				
Neuritis.....	3				
Miscellaneous :					
Tracheotomy.....	3				
Arthritis.....	1				
Vaginitis.....	4				
Adenitis (incised).....	1				
<p>During January, February and March the diphtheria service consisted of 13 cases carried over from 1903. This service closed on February 2, 1904.</p> <p>On February 17, 1904, 19 cases (convalescent) were transferred from Willard Parker. This service continued until March 21. During this service, 15 additional cases were also received.</p> <p>The following service began October 11, 1904 :</p>					
Total number of cases admitted as diphtheria and remain- } as such until discharged.....	56	..	26	14	16
Number of cases developing scarlet fever and transferred to } scarlet fever and diphtheria.....	1	..	1	..	..
Number of cases developing scarlet fever after recovering } from diphtheria.....	1	..	..	1	..
Number of deaths (total).....	9				
Number of tube cases.....	18				
Number of deaths (tube cases).....	5				
Total number of deaths during 1904.....	18				
Total number of deaths from cases admitted 1904.....	15				
Fifteen deaths in 90 cases.					
Eighteen deaths in 93 cases.					
Three cases held over from 1903.					
Scarlet Fever and Diphtheria.					
Total number of cases admitted as scarlet fever and diphtheria	58				
Number of cases remaining as such until discharged.....	54	1	26	18	9
Number of cases developing measles and transferred to } scarlet fever, measles and diphtheria.....	1	..	1	..	..
Number of cases recovering from diphtheria developing } measles and transferred to scarlet fever and measles....	1	..	1	..	..
Number of cases recovering from diphtheria and trans- } ferred to scarlet fever.....	2	..	..	1	1
Number of deaths.....	36				
Number of deaths during the first 24 hours after admission..	4				
Number of tube cases.....	4				
Number of croup cases (not tubed).....	7				

		Ages.			
		Under 1 Year.	1 to 5 Years.	5 to 10 Years.	Above 10 Years.
Complications—					
Broncho-pneumonia.....	10				
Otitis media.....	11				
Nephritis.....	2				
Albuminuria.....	11				
Adenitis (incised).....	7				
Arthritis.....	3				
Mastoiditis (both ears).....	1				
Miscellaneous:					
Ulcerative stomatitis.....	2				
Vaginitis.....	1				
Septic cases.....	11				
Measles and Scarlet Fever.					
Total number of cases.....	65				
Number of cases admitted as such, remaining the same until discharged.....	12	0	7	4	1
Number of cases in measles service, developing scarlet and transferred to measles and scarlet.....	12				
Number of cases in scarlet service, developing measles and transferred to measles and scarlet.....	41				
Number of deaths.....	17				
Complications—					
Broncho-pneumonia.....	11				
Albuminuria.....	1				
Otitis media.....	2				
Cervical adenitis (incised).....	2				
Ulcerative stomatitis.....	1				
Septic cases.....	10				
Measles and Diphtheria.					
Total number of cases admitted as measles and diphtheria...	60				
Number of cases remaining as such until discharged.....	56	3	41	11	1
Number of cases developing scarlet fever and transferred to scarlet fever, measles and diphtheria.....	2	..	2	..	..
Number of cases recovering from diphtheria and transferred to measles.....	2	..	2	..	..
Number of deaths.....	46				
Number of deaths during the first 24 hours after admission...	5				
Number of tube cases.....	22				
Number of croup cases (not tubed).....	6				

		Ages.			
		Under 1 Year.	1 to 5 Years.	5 to 10 Years.	Above 10 Years.
Complications—					
Broncho-pneumonia.....	21				
Otitis media.....	5				
Miscellaneous:					
Tracheotomy	1				
Conjunctivitis (diphtheria).....	1				
Vaginitis.....	1				
Empyema.....	1				
Scarlet Fever and Pertussis.					
Number of cases admitted as scarlet and pertussis.....	5	..	5	..	..
Number of cases recovering from pertussis and transferred to scarlet.....	1	..	1	..	..
Number of deaths.....	1				
Complications—					
Otitis media.....	1				
Broncho-pneumonia.....	1				
Measles, Diphtheria and Pertussis.					
Number of cases admitted as above.....	1	..	1	..	..
Number of deaths.....	1				
Complications—					
Tube cases.....	1				
Scarlet Fever and Varicella.					
Cases admitted as scarlet and developing varicella later.....	2	..	2	..	..
Scarlet Fever, Measles and Diphtheria.					
Number of cases transferred from scarlet fever and diphtheria.....	1				
Number of cases transferred from scarlet fever.....	1				
Number of cases transferred from measles and diphtheria....	2				
Number of deaths.....	2				

REPORT ON TUBERCULOSIS SANATORIUM, RIVERSIDE HOSPITAL, NORTH BROTHER ISLAND.

RIVERSIDE HOSPITAL, NORTH BROTHER ISLAND, }
NEW YORK, December 31, 1904. . }

To the Superintendent of Hospitals:

SIR—I have the honor to submit to you the following report on the Tuberculosis Sanatorium of Riverside Hospital, North Brother Island, with special reference to the work performed since my appointment as Physician in Charge on October 1, 1904. Previous to that date there had been no system for keeping permanent records of the condition of the patients, and therefore but the most meager details and figures can be given for that period.

The tuberculosis sanatorium was opened early in May, 1903, the first patients being admitted on the 8th and the total number of admissions for the month being seventeen. The census rapidly increased, thirty-six patients being admitted in June, fifty-five in July, and sixteen in September, by which time the institution had its complement of patients, the figure having reached forty-eight, which were all that could be accommodated at the time. Thenceforward admissions were made only as vacancies occurred by the discharge or death of a patient. For a time the service seems to have been restricted, for on January 1, 1904, the census showed only nineteen patients. Thereafter three pavilions were utilized until about November 1, 1904, when the service was increased by the addition of another pavilion, giving a total capacity of about eighty-two patients.

I have found it convenient to subdivide my report into a number of different headings, under which the essential features of the work can be discussed.

1. *Wards*—There are now in use on the tuberculosis service four pavilions, known as 9, 10, 11 and 12. Pavilion 11 is in general occupied by the more advanced and febrile male patients. It is divided into two wards, A and B, each with a capacity for 12 patients. All male patients are placed in Ward 11A on admission and kept there until the extent and activity of the disease as well as the presence or

absence of pyrexia are determined. Ward 11B accommodates the far-advanced cases in whom dissolution is near. Pavilion 12, also divided into two wards for twelve patients each, harbors the favorable and afebrile cases. Pavilion 10 is divided into four wards, A, B, C and D. Ward A is at the north end and constitutes the doctor's office and laboratory; the adjoining ward, B, is utilized as a general dining room for the male patients. Wards C and D are set aside for the segregation of certain classes of male patients, the former for the refractory, offensive or abusive patients, and the latter for a better class of patients with inactive lesions. Pavilion 9 accommodates the female patients. Like Pavilion 10 it is divided into four small wards of a capacity of six patients each, enabling a classification of the patients similar to that which is practiced on the male division of the service. However, Ward C of this pavilion is set aside for certain male patients with advanced and active lesions, but whose character and habits are above those of the average inmate of the infirmary, thus entitling them to the privilege of being segregated.

2. *Ventilation*—The requisitions for ventilating devices made last fall were not honored. As a consequence considerable manoeuvring was necessary to obtain sufficient fresh air in the wards without creating draughts. The vents in the ceilings of the wards, while probably serving the purpose for which they were originally intended, gave insufficient ventilation for the tuberculosis wards, and at the same time interfered with our efforts at fumigation, on account of the inability to properly seal the room. I would suggest that, as the main reliance has been and probably will continue to be of necessity placed in the windows to secure ventilation, these vents in the ceilings be closed up in order to enable us to efficiently fumigate the wards.

3. *Diet*—The diet is exceedingly liberal, and patients who have been in other institutions assure me that it is far superior, both in quantity and quality, to that given elsewhere. In addition to the regular meals there is an auxiliary diet to which the patients can help themselves *ad libitum* between meals. There is in each ward a table upon which are placed liberal quantities of milk, raw eggs, sugar, lemons, cracked ice and carbonic water.

4. *Daily Routine*—There is a rising bell at 6 A. M., at which time all ambulatory cases are required to get up, to enable the nurse and helpers to proceed with the day's cleaning. The meal hours for the patients are: Breakfast at 6:30 A. M., dinner at 12 M., and supper at 5 P. M. All patients must be abed and lights extinguished at 9:30 P. M. Rounds are made twice daily by myself or assistant, during which patients are interviewed and their charts inspected.

5. *Open Air Treatment*—The importance of living in the open air is impressed upon all patients, and in most instances these instructions are followed cheerfully. But there was great difficulty in carrying this out in the inclement weather of the past winter owing to lack of shelter and insufficient clothing. I have repeatedly urged the need of verandas, and I consider them as necessary now as ever. We have at present no means by which bed-ridden patients can be given the benefit of out of door treatment. The rest cure gallery was completed too late in the season to be of any practical use, most patients preferring now to take their rest and sun-bath entirely out of doors. With the advent of summer we will require some protection from the rays of the sun, and I therefore recommend the erection of about four canvas covered sheds or awnings. The atmosphere is unquestionably much purer than that of the city, but there are sources of contamination which could be avoided, or at least diminished in extent. On windy days there is considerable coal dust swept up from the cinder paths with which the island is intersected. This has been in part obviated in the past by the free use of petroleum, but unquestionably the best plan would be to have these walks of asphalt or brick pavement. A rather more annoying source of contamination is the smoke nuisance produced by the burning of soft coal by vessels plying in the river in the vicinity of the island. The most noticeable offenders in this respect are the towboats of the N. Y., N. H. & H. Railroad, which pass here in considerable numbers many times every day.

6. *Rest*—Rest constitutes one of the three cardinal factors in the therapy of the disease, and patients are instructed as to its necessity. In all cases of pyrexia of 100 Fahrenheit or more the patients are put to bed for twenty-four hours, or as long as may be required, to reduce temperature. Recently a requisition was sent in for a dozen

reclining chairs. These are urgently needed to enable us to carry out the rest-cure, as those that are now on hand are insufficient in number and mostly dilapidated.

7. *Exercise*—Upon admission patients are instructed to take no exercise whatsoever, except under the direction of the physician, each case being individualized, according to its needs. There is regular instruction in the series of pulmonary exercises advised by Dr. Knopf, the attending physician. The patients seem to enjoy these very much and are evidently very much benefited thereby in the improvement of their respiratory capacity.

8. *Clothing*—Except in the matter of underwear, the Department has made no provision during the past winter for the clothing of the patients, and they have had to rely almost exclusively upon their own clothing for protection against the cold. In many instances this was utterly inadequate, and this deficiency was a serious impediment to the carrying out of the out-of-door treatment. With the advent of warm weather this problem will be an easier one, as the patients will then be clad in their heavy cotton underwear and pajamas, which constitute the uniform worn last summer. Dr. Knopf suggests that the Department secure a supply of misfit or cast-off military suits and cloaks, which can be had at a low price. At any rate, our experience of the past winter makes it desirable that provision be made *now* for the proper clothing of the patients next winter.

9. *Baths*—Excepting in pavilions 9 and 10, the bathing facilities for the patients are inadequate. In these wards there is one tub bath for every six patients, which serves very well. But in Wards 11 and 12 there is only one bath to every 24 patients, and that is obviously insufficient. In previous reports I have recommended the installation of shower baths, as being more sanitary and allowing in a certain measure the application of hydropathic treatment. I still urge the adoption of this improvement for the reasons above stated.

10. *Recreation*—There is little or no provision for out-of-door recreation, and I therefore recommend that the institution be furnished with a number of games, such as croquet (with long handles), quoits, ring-toss, etc. The Supervising Nurse informs me that she intends to supply

the patients with the material for making baskets and wicker work, which process will be taught them by one of the patients now resident.

11. *Discipline*—Great vigilance is required to keep the patients from expectorating on the grounds. While making rounds an occasional lecture is given on the danger of the spitting habit and the necessity for the destruction of the sputum. My aim is to get patients interested in the subject and have them promptly report any delinquency on the part of any of their associates. The attitude of the patients toward the management of the institution is, with the exception of one or two malcontents, one of friendliness and appreciation. That the patients appreciate the improved condition in which the institution now is, and the greater attention shown them by the staff, is attested by the fact that the average duration of their sojourn has been greatly increased during the past six months. The decreased number of admissions, in spite of the fact that a new pavilion was opened and filled in November, also corroborates the above statement.

12. *Disposal of Sputum*—One of the patients is engaged at a small salary to attend to the emptying of sputum cups and the destruction of the sputum. He is thoroughly drilled in the necessary details. There are approximately 450 ounces of sputum to be taken care of daily. This is mixed with sawdust and incinerated. In my opinion this disinfection is efficiently performed by the crematory now in use. Some of the patients have sputum flasks, which they prefer to boxes. Patients using boxes bring them to an appointed place in the vestibule of the ward and exchange them for fresh tin containers, which had previously been dipped in carbolic solution. The floor and wainscoting of the vestibule in which the emptying and cleaning of the cups is done is washed daily with a 5 per cent. solution of carbolic.

13. *Disinfection and Fumigation*—All wards are fumigated with formaldehyde on stated days, at least once a month, and those wards in which febrile or septic cases are kept are fumigated once every fortnight. As above stated, there is at present some difficulty in properly sealing the wards, and I recommend that means be taken to render them air-tight, as I consider this system of fumigation an important factor in the prevention of reinfection and mixed infections. The blankets worn by patients are disinfected in the steam sterilizer every month.

14. *Cleaning of Wards*—The dust is gathered every morning with a damp cloth tied over a broom, and then the floors are thoroughly scrubbed. No dust is allowed to accumulate on the tops of windows, doors, closets, etc. The wards are kept free from dust as far as is possible or practicable.

15. *Weighing of Patients*—Every Monday, before the noonday meal, all the patients in the institution are weighed and the record kept by the nurse. Most patients show a rapid increase in weight, especially during the first month or two of their sojourn, and even in far-advanced cases some remarkable results are obtained.

WEIGHTS OF PATIENTS IN THE INSTITUTION ON APRIL 1, 1905.

Pavilion IX (Women).

Number of patients who lost weight.....	8
Number of patients whose weight remained stationary.....	0
Number of patients who gained weight.....	15
Of those who gained the average increase was 7 pounds.	

Pavilion X.

Number of patients who lost weight.....	1
Number of patients whose weight remained stationary.....	1
Number of patients who gained weight.....	5
Of those who gained the average increase was 12½ pounds.	

Pavilion XI (Septic).

Number of patients who lost weight.....	10
Number of patients whose weight remained stationary.....	3
Number of patients who gained weight.....	9
Of those who gained the average increase was 5 3-10 pounds.	

Pavilion XII.

Number of patients who lost weight.....	1
Number of patients whose weight remained stationary.....	1
Number of patients who gained weight.....	20
Of those who gained the average increase was 12½ pounds.	

From the above tables it will be seen that 49 out of 74 patients, *i. e.*, 66 per cent., gained in weight, the average increase being 9.4 pounds per patient, and this in spite of the fact that the great majority of the patients are in advanced stages of the disease. Even in the Septic Ward (11), where all the patients have active lesions with pyrexia, 9 out of the 22 gained in weight, the average increase being 5.3 pounds. This shows the remarkable influence of rest and an abundant diet, whereby the patients' weight can be increased in advanced and even advancing pulmonary disease.

16. *Nurses and Orderlies*—There have been during the past winter seven nurses in this service, of which four served in the day, two at night and one acted as relieving nurse. Owing to the present increased census another nurse will be necessary, and I believe the Supervising Nurse has sanctioned her appointment. There are three orderlies on the service, two working by day and one at night. In addition there are on the pay-roll two patients receiving together the salary of one laborer. One of these attends to the cleaning of the sputum cups and the other is stationed as laboratory attendant.

17. *Classification of Cases*—Hitherto there has been no classification of cases according to the stage of the disease. Of course, most of our cases are in the advanced stage, but still they admit of some classification, and I would recommend the adoption of that used at the Metropolitan Hospital, which is as follows:

Classification at Metropolitan Hospital.

Class A—In the incipient stage.

Class B—Cases showing fever, cough, night sweats and tubercle bacilli, but retaining a fair amount of strength and bodily nutrition; moderately hopeful.

Class C—Cases with all symptoms clearly developed, but general condition less favorable than in preceding class, though still able to be up a portion or whole of each day, and not in the last stages of the disease.

Class D—Patients in the last stages of the disease.

18. *Statistics*—The number of patients remaining in the Hospital on January 1, 1904, was 19. The number admitted during the year was 252, making a total of 271 patients treated. The number of deaths during the year was 78, which seems at first sight to be an exceedingly high mortality. This is, of course, accounted for by the advanced stage in which the majority of the patients are received. Bearing out this statement is the fact that almost one-half of the deaths occurred within a month of the date of admission. Of these 9 occurred within 10 days and 28 in from 10 days to one month.

A moderate number of cures have also been effected since the institution has been opened. Their number is relatively small, but would be considerably greater were it possible to induce the patients to remain a sufficient length of time. But in most instances where the patient's strength is only fairly well restored a spirit of restlessness seems to take possession of him and he makes a request for his discharge, even though he may have no one dependent upon him, and in spite of the fact that he is able to provide for himself only the barest maintenance.

There are two classes of cases: Voluntary and Forced-in. Their relative proportions cannot be definitely stated in this report, as the Department has hitherto not informed me as to the character of the cases as regards this classification. It is needless to say that the forced-in cases are almost invariably far advanced and soon succumb to the disease: ¹

Nativity.

United States.....	207	Canada	3
Ireland	76	Sweden	3
Russia	35	Poland	3
Germany	34	Denmark	1
Italy	25	Bohemia	2
Austria	17	France	2
England	16	West Indies.....	1
Scotland	8	Finland	1
Roumania	5	Iceland	1
Hungary	4		

From this table it can be seen that by far the greater majority of the patients are native born. Ireland comes second on the list.

Civil Condition.

	Men.			Women.		
	M.	S.	W.	M.	S.	W.
1903	38	16	12	9	10	2
1904	92	107	16	16	12	4
1905	20	10	..	17	16	4
	150	177	28	42	38	10

From this it can be seen that the number of single men received here is slightly in excess of the number of married men, and on the other hand, the number of married women exceeds that of the single.

Table of Ages of Patients Treated at Riverside Sanatorium, May 8, 1903, to December 31, 1904.

	Men.	Women.	Totals.
Under 10.....	3	2	5
11 to 20.....	35	15	50
21 to 25.....	32	16	48
26 to 30.....	67	16	83
31 to 35.....	55	13	68
36 to 40.....	54	8	62
41 to 50.....	72	8	80
51 to 60.....	24	2	26
Over 60.....	21	3	24
	363	83	446

This table shows that the great majority of patients admitted were over 25 years of age, and that fully one-third of the cases occurred between the ages of 25 and 35 years. Twenty-four cases occurred in patients over 60 years of age.

Occupation of Male Patients.

Laborers	43	Cutler	1
Clerks	9	Lineman	1
Porters	8	Pressman	1
Waiters	5	Gasfitters	2
Drivers	11	Brakeman	1
Bartenders	8	Carriageman	1
Painters	6	Policeman	1
Bakers	5	Horseshoers	2
Tailors	9	Longshoremen	2
Salesmen	8	Janitors	2
Ironworkers	5	Pianomaker	1
Shoemakers	4	Bookkeeper	1
Hatmakers	3	Cook	1
Printers	3	Plumber	1
Office Boy.....	1	Electricians	2
Foreman	1	Iceman	1
Photographer	1	Carman	1
Rag-picker	1	Steamfitters	3
Stenographers	2	Housesmith	1
Lithographer	1	Cigarmakers	2
Capmakers	2	Agents	2
Pipemaker	1	Mason	1
Piano Teacher.....	1	Coachman	1
Operator	1	Dockbuilder	1
Bricklayers	2	Silversmith	1
Stonecutters	2	Conductor	1
Broker	1	Ship Carpenters.....	2
Cutter	1	Rubber Worker.....	1
Furrier	1	Fireman	1
Shoe Trade.....	1	Roofer	1
Factory Work.....	1	Barber	1
Candymaker	1	Peddlers	2
Watchman	1	Musicians	2
Carpenters	3	Horseman	1
Boatman	1	Blacksmith	1
Dishwasher	1	Soda Water Bottler.....	1
Butcher	1	Tinsmith	1

The above table shows that in the ranks of the patients 74 different occupations were represented. There is but little to show any causative relation between the occupation *per se* and the disease.

But there are probably remedial conditions accompanying these occupations which have more or less influence in fostering the disease and disseminating it. I would, therefore, recommend that it be made a rule to inspect the places of employment of the patient, if not in all instances, at least in cases of butchers, bakers, restaurant employees (waiters, cooks and kitchen help), cigar-makers and factory workers.

19. *Temperatures*—The beneficent influence of the rest and open air treatment is well demonstrated in the following tables, showing the afternoon temperatures of 58 patients who had been in the institution three weeks or more on December 31, 1904.

	On Admission.	On Dec. 31, 1904.
Temperature, normal.....	24 patients	35 patients
Fever under 100 Fahrenheit.....	10 patients	7 patients
Fever over 100 Fahrenheit.....	18 patients	5 patients
Temperature, subnormal.....	6 patients	11 patients

20. *Histories*—I have found the history cards very satisfactory, but have certain additions to suggest. I think we ought to make provision for recording the following additional data:

Stage of disease on admission.

Treated at Health Department Clinic before admission? Duration?

Treated in other institutions?

Treated by private physicians?

Self-treated by patent medicines?

Address of the last place of employment?

21. *Treatment*—Recognizing that the specifics are fresh air, nourishing diet and rest, there remains but little to do in the way of medication, excepting to meet indications as they arise. No drugs are used in the sense that they are anti-tubercular. Scrupulous care is taken that the patients have satisfactory daily evacuations of the bowels, and to that end R. & S. Mixture and Cascara are extensively used, and they, together with the ordinary tonics and cough sedatives, are the drugs appearing most frequently upon the charts.

22. *Laboratory*—The laboratory at the northern end of Ward 10 has been in operation some five or six months. Here clinical microscopy and chemistry are done not only for the tuberculosis service, but also for the contagious wards. All specimens of urine, blood, sputum, vaginal discharges and ear discharges are regularly examined here and reports rendered to the Resident Physician. These duties often conflict with my work in the tuberculosis sanatorium, but with the able and willing assistance of Dr. F. S. Westmoreland, the interne assigned to the tuberculosis service, I am able to get along fairly well.

23. *Passes*—Patients (excepting those “forced in”) receive upon application passes to leave the Island for limited periods of time. They not infrequently employ this opportunity to indulge in various forms of dissipation, often overstaying the time allotted, and when they do return are much the worse for the abuse of the privilege allowed them. I have, therefore, found it necessary to restrict the number of passes and to issue none to any patient twice within the same month. It was my intention to supply each patient leaving the Island on a pass with a number of paper pocket cuspidors, sufficient to last the duration of leave. With this end in view I had made, sometime ago, a requisition for a supply of Seabuty’s Sanitary Pocket Cuspidors, such as are used in the Health Department Clinic, but this requisition has not been honored.

24. *Instructions to Patients*—Upon admission each patient is provided with a sputum cup or bottle and instructed by the nurse as to the infectiousness of the sputum and the necessity for its destruction. His clothes are taken from him, disinfected and stored until the time of departure, and in their stead he is provided with the regular institution uniform. However, as above stated, during the past winter we have of necessity been compelled to allow the patients to wear their own clothes. Upon the patient’s departure he receives a copy of the Department’s circular of “Information for Consumptives and Those Living With Them,” printed in the language with which he happens to be most conversant. I am preparing a folder of instructions to be handed to each patient upon admission. I will submit the same to you at a later date for your approval.

25. *Rules*—I append to this report a list of the rules that I have prepared for the guidance of nurses and another list for patients, which I have posted in conspicuous places in each of the wards.

26. *New Appointments*—Dr. Knopf suggests that you appoint a Laryngologist to serve on the Tuberculosis Division, so that we may have regular weekly or semi-weekly visits of a specialist to take care of the laryngeal cases. He further suggests the appointment of a Dentist and a Barber.

Rules for Nurses.

1. The nurse is responsible for the cleanliness of her ward. She must, under no circumstances, allow dust to accumulate anywhere. The tops of windows, doors, transoms, closets, etc., must be regularly inspected and kept dust free. All dust must be removed by wiping with a damp cloth. The dust on the floor must be gathered by means of a broom covered with a damp cloth, and the floor scrubbed daily with hot soap suds. This cleaning must be completed before 9.30 A. M., which is the physician's hour for making rounds. Patients must not be allowed to brush clothing or shake blankets or bedding in the wards.

2. Immediately upon the arrival of a patient at the Sanatorium it is the duty of the nurse to instruct him as to the infectiousness of the sputum and the necessity for expectorating into a cup or flask; also in matters of personal hygiene, such as the avoidance of soiling the hands, face or clothing with sputum; the necessity for holding a cloth before the mouth when coughing and of washing the hands before meals. The nurse must correct the patient each time she observes the slightest deviation from any of these instructions.

3. The nurse must allow no patient to be in the ward while the same is being cleaned. She will be provided with a respirator, which she is urged to wear during this process, to avoid the inhalation of infectious dust.

4. The nurse must supervise the cleaning of the sputum cups and see that the helper detailed to do this work performs it in a thorough and efficient manner, so that there will be no spread of infection by these means. The floor and wainscoting of the vestibule in which the cups are cleaned must be washed daily with a 5 per cent. solution of

carbolic acid. Sputum flasks must be cleaned by the patients themselves, according to the following directions:

The contents of the flask are to be emptied into the can used for sputum. The flask is then to be taken to the sink and thoroughly rinsed in hot water until clean, washed with a 5 per cent. creolin solution both inside and out and finally filled one-third full with the same solution. The patient must then thoroughly wash his hands with soap and water.

5. The nurse should supervise the ventilation of the wards and must, under no circumstances, permit the patients to raise or lower the windows. On clear, temperate, windless days all windows should be open. On stormy and very cold days the windows should be closed to the windward and open on the opposite side. The nurse should use her discretion to obtain the greatest possible access of fresh air without creating marked draughts. During the cold weather the temperature of the ward should not be higher than 45 or 50 degrees Fahrenheit. All windows should be closed and the ward warmed during the half hour preceding the rising bell.

6. Any sudden exacerbation of the symptoms of a patient, or the occurrence of a hemorrhage or other accident, should immediately be reported to the attending physician or his assistant.

7. Patients going out on pass must be provided with pocket sputum cups sufficient to last the duration of the leave of absence, also with the Department's circular "Information for Consumptives." This circular must also be given to patients upon their discharge from the Sanatorium.

8. Nurses must see that their medicine closets are kept fully stocked with all the solutions, tablets, dressings, etc., usually prescribed by the physician, and that all boxes and bottles be properly labeled.

9. Unless otherwise ordered by the physician, temperatures must be taken at 6 A. M. and 4 P. M. in Wards 10 and 11, and at 4 P. M. only in Ward 12.

10. The bed linen of patients must be changed twice a week as a routine matter. If, however, the bedding of a patient should become soiled with blood, sputum or other excretions, it must be replaced immediately. In case of death of a patient, the mattress, blanket and

pillows must not be used for another until after such disinfection as may be ordered by the physician in each case.

11. Nurses must familiarize themselves with the rules prescribed for the conduct of the patients and must see that they are explicitly obeyed.

Rules for Patients.

1. Never spit on the grounds, on the floor of the wards or toilet rooms, into the sinks nor anywhere except into the cup or bottle provided for that purpose.

2. You are required to carry your sputum cup or bottle with you wherever you go. Never leave it lying about on the grounds. If your cup is more than half full exchange it for a fresh one at the place appointed for that purpose. If you have a bottle you must clean it yourself according to the instructions you will receive from the nurse. If you should accidentally spill the contents of your sputum cup, inform the nurse or orderly of the fact, so that the place may be properly disinfected.

3. Never swallow your sputum. Don't cough unless you have to. Hold a piece of gauze before your face when coughing or sneezing. Avoid soiling your hands, face or clothing with sputum. Wash your hands before each meal.

4. Unless instructed by the doctor or nurse to remain in bed, all patients able to walk must arise with the bell at 6 A. M. Patients must go to bed not later than 9.30 P. M., after which hour no games will be allowed in the ward.

5. Patients are not allowed in the wards while the same are being cleansed, nor at any other time during the day, excepting by special permission of the doctor or nurse.

6. The use of whiskey or alcoholic beverages other than those prescribed by the doctor is absolutely prohibited. There must be no smoking in the wards or toilet rooms.

7. Boisterous conduct, profanity and loud talking or quarreling are strictly prohibited.

8. Patients must not brush their clothing nor shake their blankets or bedding in the wards.

9. Patients are not allowed to raise or lower the windows nor to meddle with the valves of the radiators. If there is too much draught, or if it is too hot, inform the nurse and she will make the necessary correction.

10. Your chances of getting well depend largely upon the observance of these rules. It is, therefore, to your interest to obey them and to see that they are followed by the other patients. The individual who breaks these rules is your enemy and should be promptly reported to the doctor or nurse. If you have any other complaint to make state the case to the doctor.

Respectfully,

W. T. KLEIN, M. D.,

Associate Resident Physician.

RIVERSIDE HOSPITAL, NORTH BROTHER ISLAND, }
NEW YORK, December 31, 1904. }

To the Superintendent of Hospitals:

SIR—At the request of Dr. Richardson for a résumé of my work, I gladly give you a short sketch.

Upon my arrival here at Riverside Hospital, and on looking over the institution, I found that a chaplain's duties would be executed in a materially different manner from that in which they were executed in an emergency and general hospital, on account of the particular character of the diseases found here. But here was work to be done, and a work which every man is not anxious to assume, so that a method was determined upon which has been followed as closely as possibly can be followed when we remember that each person or patient has to be approached by a clergyman in a different way.

First, my thanks are due to the officials of the Department of Health for the assistance rendered in having the religion of the patient designated on the Diagnostician's permit. This, whether Catholic, Hebrew or Protestant, is marked on the patient's ward card and enables the chaplain, as he visits the wards, to know his own patients and there

is no danger of his ministrations being directed or given where they would be unwelcome.

In the contagious wards little work can be done with the children, except to administer the Sacrament of Baptism (hypothetically, unless the child is known to be unbaptized) when the child is dangerously ill or dying, and also the petitions which are offered for the little one's recovery. With the adults in these wards the serious bedside talks and comfort constitute largely the work of the chaplain. Bibles, devotional books, newspapers, magazines, etc., are distributed—as many as can be had.

With the tuberculosis patients a freer method is used, in that these patients can be approached at all times. The purely spiritual work is conducted in a quiet and unobtrusive way and everything is done that will tend to make them contented. Here again reading matter is distributed, and when the library building is completed there will be an abundance of books, magazines and periodicals to which they may have access. With the tuberculosis patients the chaplain insists upon being notified and called when a sudden and final change occurs, so that he may comfort their dying moments.

Public services are held on Wednesdays, Fridays and Sundays. It was not expected that the weekday services would ever be attended, but an agreeable surprise has been experienced in the sustained average of about eight patients at these services, and they are glad of the opportunity to worship. Sunday services are joined in by the Protestants pretty generally, and it is most gratifying to be able to assist those, for otherwise they would be unable to go to church at all on Sunday.

Since my coming here the Chapel has had many additions to its furniture and appointments in gifts from friends outside. Among other things may be mentioned the gift of a small organ from some ladies of Grace Church, altar hangings and vestments from the Altar Guild of the New York Protestant Episcopal City Mission Society, a prayer desk from a friend of the hospital and two brass altar vases and a brass cross from those interested in the Chapel on the Island.

Speaking generally, as one who is interested in the whole work which is being done in the institution, I can see that I perceive ten-

dencies and forces which denote a marked advance, which will rank Riverside as among the standard hospitals. The stigma which formerly attached itself to the pest-house is not to be found on the Island to-day, and Riverside cannot be regarded, at least by those who are familiar with the actual conditions as they exist to-day, as a pest-house, but as an excellent hospital. The distrust of the hospital can be removed in no better way than by having regular visiting days for all diseases, as is in vogue now, so that those people who have sick relatives and friends here can come and see them and how much is being done to send their sick ones back to them well and strong.

Respectfully submitted,

JOHN BOYLE,
Chaplain.

DEPARTMENT OF HEALTH, KINGSTON AVENUE HOSPITAL, }
BOROUGH OF BROOKLYN, December 31, 1904. }

Dr. G. T. STEWART,

Superintendent of Hospitals:

DEAR SIR—I have the honor to submit the following report of work done and permanent improvements made at the Kingston Avenue Hospital during the year 1904:

The premises have been cleared and generally improved, the rubbish and condemned articles removed and destroyed. The Kingston Avenue front of the property has been graded and terraced and the trees and hedges set back to provide for street widening. A temporary wire fence built along the Rutland road and Kingston avenue frontage of the property. Considerable filling in has been done around the new Disinfecting Station and on the Rutland road and Albany avenue frontage. Cement walks have been laid around the administration building. The area between administration building proper and annex paved with cement and drainage into sewer provided. A topographical map of the entire premises has been made. A brick retaining wall for 133 feet along the Rutland road frontage of the property has been built.

Improvements to Old Building.

All the ward buildings, administration building and dormitories have been furnished with Holland shades. New stoops and storm doors have been built for the administration building and Pavilions Nos. 2 and 3. The steam heating plant has been repaired and pipes covered with asbestos and zinc coverings. The furnace of the garbage crematory was rebuilt. The old coal shed was provided with a new roof and the necessary alterations made to convert it into a temporary coach house. The greenhouse was removed to a new location, permanent brick foundation and steam connections made. Awnings were purchased and placed on Pavilions Nos. 2, 3 and 7. The wagon scales were removed and installed in front of new coal house. The toilet, bath and plumbing fixtures of the entire plant, excepting the cottages, were overhauled

and necessary repairs made. The floors, ceilings and walls of all ward buildings have been repainted where necessary.

Stable.

The roof was repaired and roof of annex painted. The three (3) ambulances, ten (10) goods wagons and buggy were overhauled and repaired. One (1) ambulance, station wagon and two (2) sets of ambulance harness purchased. Four (4) horses for use on ambulances were purchased.

Purchases.

Six (6) steel enameled glass top dressing tables, twelve (12) enameled screens and other improved ward furniture. Three (3) refrigerators, for use of wards. The supply of surgical instruments increased. Tables and chairs for dining rooms. Wardrobes and dressers for domestics' dormitory. New switchboard and four (4) additional 'phones. Fire-alarm system altered and extended. New extinguishers and fire hose purchased.

New Work.

A brick and limestone building has been erected adjoining the new boiler house for the storage of coal, capacity two thousand (2,000) tons. A brick pavilion, which will accommodate eighty (80) patients, is in the course of erection and is nearing completion. A brick building, which will afford accommodations for eighty (80) nurses, is in the course of erection. The second story of Disinfecting Station has been plastered, partitioned and fitted up for a bacteriological laboratory. The steam boilers have been removed from the old boiler house and installed in the new. A new steam chest has been installed in the Disinfecting Station.

Nursing Department.

The salaries of the nurses have been increased and the number of nurses and ward attendants increased, thereby providing better care and attention for the patients. New nurses' gowns, nurses' uniforms, doctors' gowns and ward linen have been purchased, providing better ward equipment. Chairs, tables and beds in all wards have been repainted.

Recommendations.

I respectfully suggest the following improvements for the year 1905:

That a permanent iron fence be erected around the entire premises and a gate house built at the Kingston avenue entrance. In the present condition, with the property partly unfenced and partly provided with wire fence, which is easily scaled, it is impossible to prevent the ingress of any persons who may desire entrance. The escape of quarantine patients can, at present, only be prevented by the constant supervision of attendants. The fence on the Rutland road frontage is so near the ward buildings that it is possible for patients to communicate or come in contact with their friends on the street.

That the premises be filled in where necessary and at other places graded down to conform with the street level. Under present conditions water accumulates in the lower portions of the grounds after each heavy rain, causing serious inconvenience and menace to health.

That the old sterilizing chest in the boiler house be removed and this space converted into additional laundry room, a new mangle, clothes wringer, smoothing iron furnace and driers be erected. The present capacity of the laundry is entirely inadequate for the growing needs of the hospital.

That an addition to the stable be built to provide a coach house and additional stalls for horses.

That new plumbing, bath and toilet fixtures be installed in the five (5) isolating cottages. The toilets and bath tubs in these places are in bad condition and are unsightly and unsanitary. The plumbing fixtures are in such bad condition that during the past year there have been almost continuous breaks in the water pipes and toilet connections, frequently causing flooding of the floors and preventing the use of the buildings.

That the sewage tank be enlarged or connection with the sewer be established.

That arrangements be made with the Department of Highways to secure the paving or macadamizing of Rutland road, from Albany avenue to Nostrand avenue, and of Kingston avenue, from Rutland road to

Hawthorne street. At present these roads become, in bad weather, almost impassable for pedestrians, and cause serious damage and delay to the ambulances and wagons.

That the roofs and leaders of the administration building, pavilions, storehouse and stable annex be repaired.

Respectfully submitted,

E. M. BEERY, M. D.,

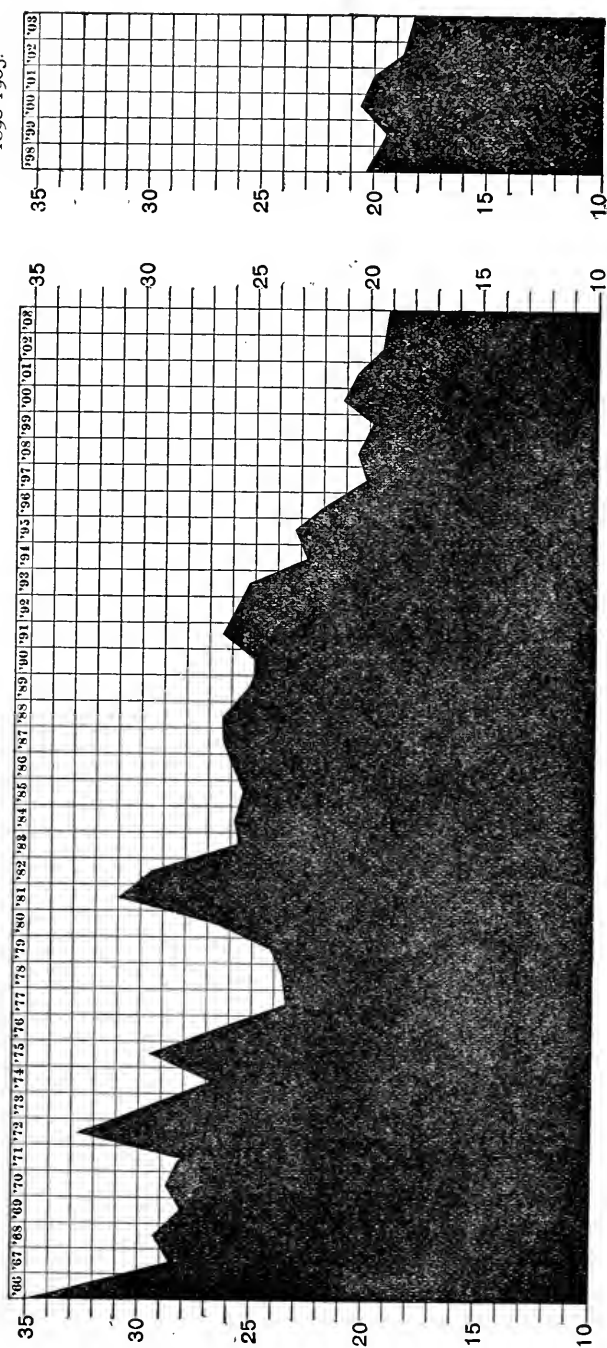
Hospital Physician.

The chart opposite shows a decrease in the crude death-rate from 34.92 during the year 1866 (date of organization of the Board of Health) to 19.11 per 1,000 during 1903, in the former City of New York; the next lowest rate was 19.49 in the year 1902, and it will be found necessary to go back to the year 1814 to find a rate (19.66) to approximate either of these two. The actual number of deaths in the year 1903, in the entire city, was 67,864; if the same death-rate prevailed in 1903 as prevailed in 1866, the number of deaths would have been 132,047.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE

BRONX)—GENERAL DEATH-RATE PER 1000 POPULATION—1866-1903.

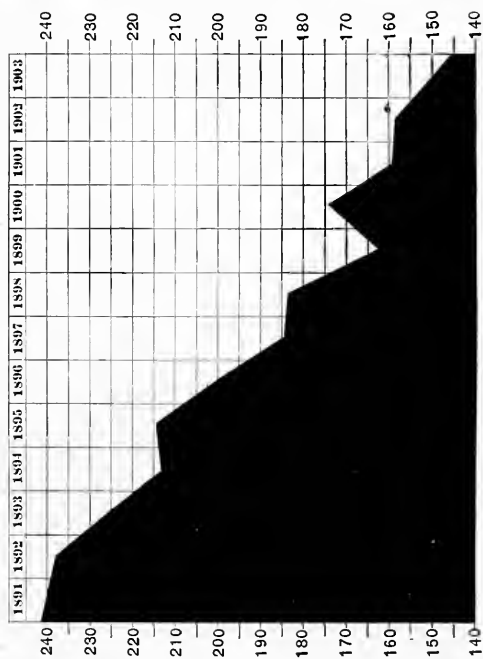
GREATER CITY,
1898-1903.



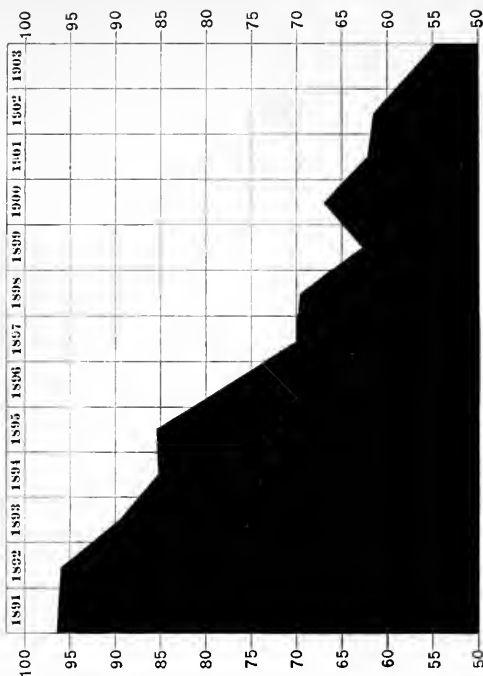
The chart opposite presents clearly to the eye the almost continuous fall in the death-rate at the ages under one year and under five years, the ages at which the death-rates are higher than at any other life-period, save those at the ages of 65 and over. The death-rate of children under five years of age has been always considered by vital statisticians a meter wherewith to judge of the sanitary surroundings of a community, and the decrease shown in this photograph is reassuringly demonstrative of the effect of persistent sanitary supervision and preventive medical interference.

OLD CITY OF NEW YORK—DEATH-RATE OF CHILDREN UNDER ONE YEAR AND UNDER FIVE YEARS
PER 1000 OF ESTIMATED POPULATION AT THOSE AGES—1891-1903.

Under One Year.

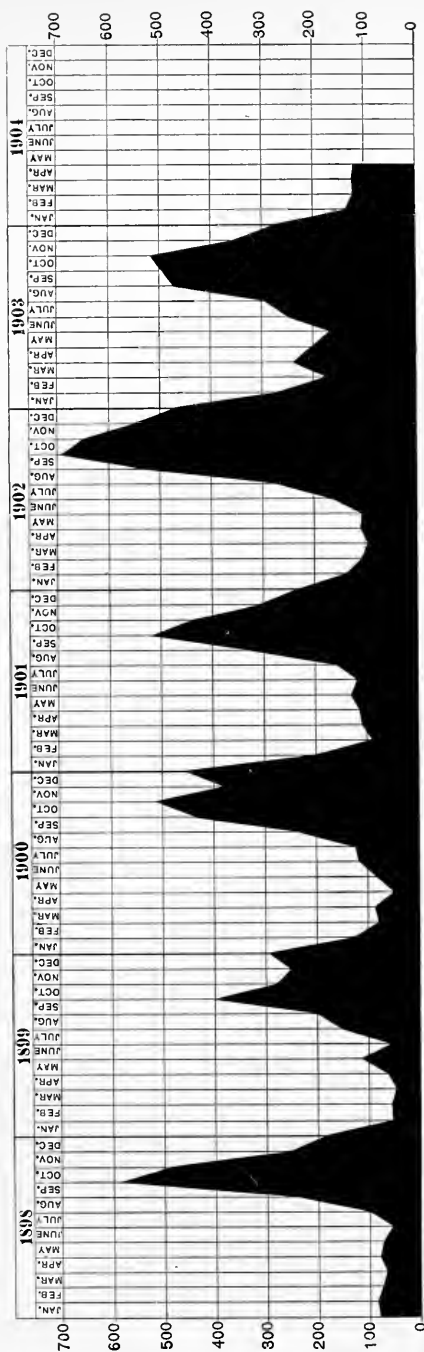


Under Five Years.



The chart opposite was prepared to show the autumnal incidence of typhoid fever. Within recent years the number of cases of typhoid fever have apparently increased; that this increase is not a real one is explainable on the ground that previous to adoption by this Department in 1898 of the procedure whereby physicians could have examined free of cost the blood of their patients for the presence or absence of the Widal reaction (a positive aid in the diagnosis of this disease) a great many cases were not reported to the Department. On the previous chart, it is evident that the death-rate from this disease in the Greater City tends toward a decrease rather than increase, and in the absence of any known therapeutical agent influencing the rate of mortality from this disease, it is safe to assume that the increase of the number of cases is due to more accurate registration, and not to more widespread infection or unsanitary precautions.

CITY OF NEW YORK—CASES OF TYPHOID FEVER REPORTED, BY MONTHS—1898-1904.



This chart shows a decrease of fifty per cent. in the death rate from typhoid fever in the former City of New York (present Boroughs of Manhattan and The Bronx) during the year 1903, as compared with the decennial average rate of 1873 to 1882. The average decennial death-rates, per 100,000, from this disease in the former City of New York, were as follows:

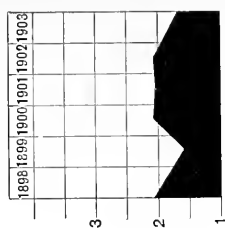
1873 to 1882.....	32.8
1883 to 1892.....	28.7
1893 to 1902.....	17.8

In the former City of Brooklyn (present Borough of Brooklyn), the average decennial rates were 1883-1892, 18.8; 1893-1902, 20.2. The rate for the year 1903 was 20.7, showing an increase over the aforesaid decennial average of 1883-1892 of 10 per cent.

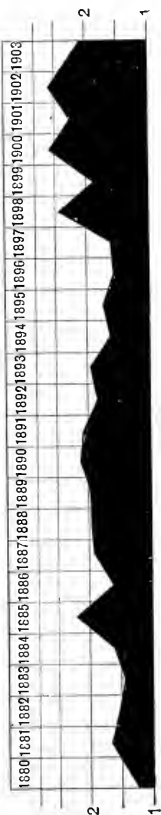
OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE
BRONX)—DEATH-RATE PER 10000 POPULATION FROM
TYPHOID FEVER—1873-1903.



GREATER CITY OF
NEW YORK,
1898-1903.

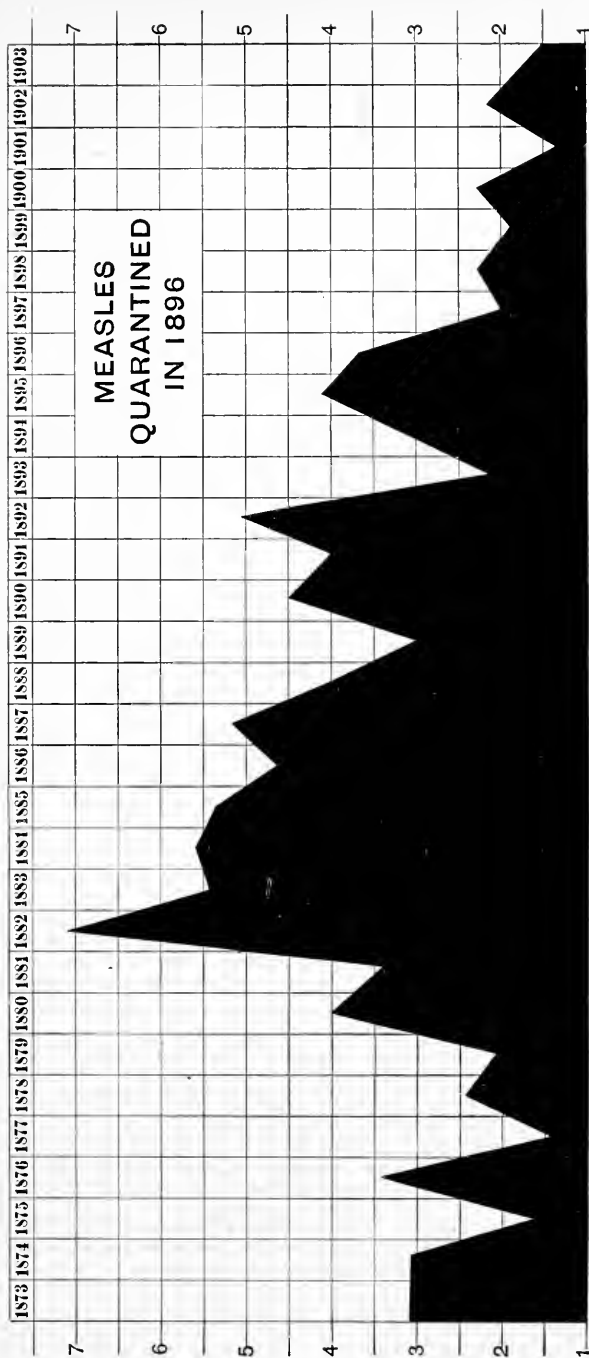


CITY (BOROUGH) OF BROOKLYN—1880-1903.



This chart shows the death-rate from measles for a period of thirty years in the old City of New York. With two exceptions, it will be noticed that a wave of incidence appears regularly every second year, an "off" year followed by one of greater infection. Note the considerable decrease in the rate since 1896, when measles was first quarantined and apartments, wherein death occurred, fumigated.

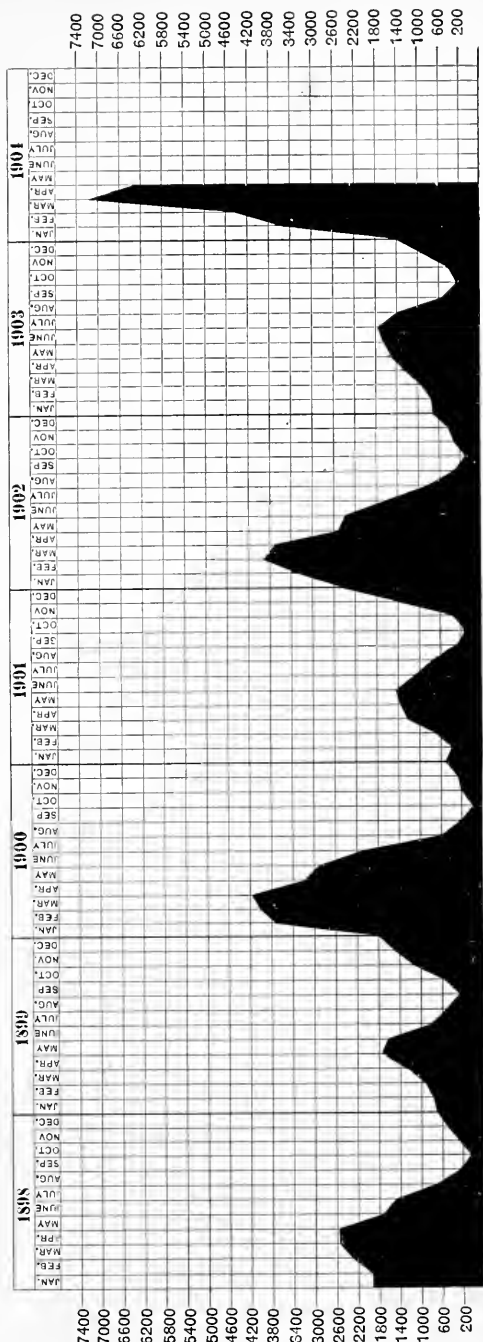
OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—DEATH-RATE
FOR 10000 POPULATION FROM MEASLES, 1873-1903.



This chart corroborates what has been already noted on previous page, as to its severer type every other year.

This most contagious of diseases has been viewed by the laity as a necessary accompaniment of early childhood, and, therefore, an evil to be endured for the time, and for time to cure. This view of the harmlessness of this disease has resulted very often in careless exposure of other members of the family and in neglect to seek medical advice, with results which are shown in the fact that the death-rate from measles during the past ten years has equaled that of scarlet fever, a disease much more dreaded by the laity.

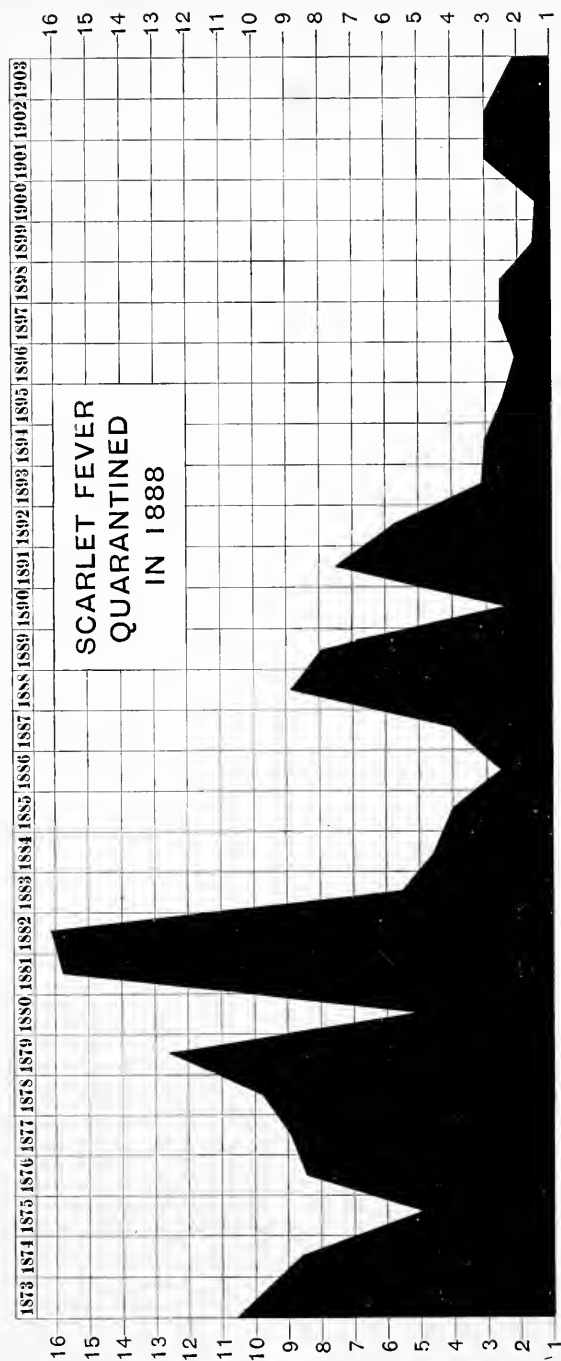
CITY OF NEW YORK—CASES OF MEASLES REPORTED, BY MONTHS—1898-1904.



This chart shows a fall in the death-rate from scarlet fever in the year 1888 (in which it was first quarantined), from 9 to 2 per 10,000.

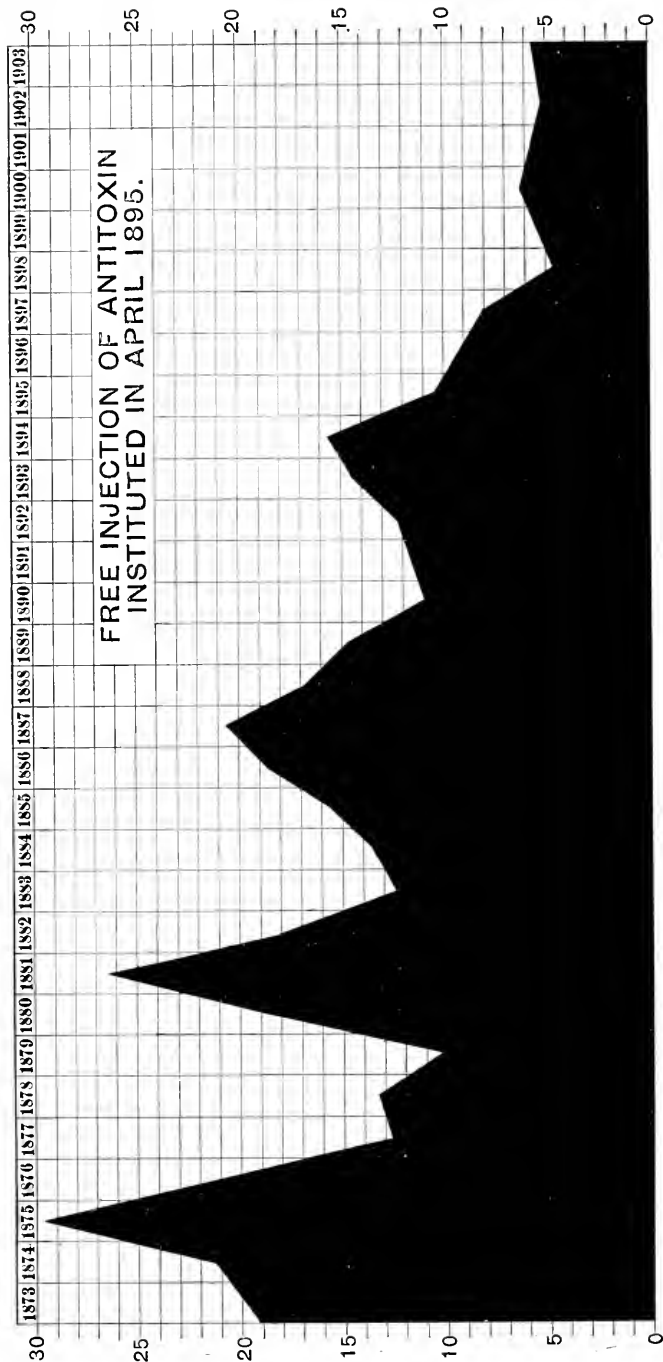
The average death-rate per 10,000 from this disease for the decennium 1873-1882, was 9.22; 1883-1892, was 5.97, and from 1893 to 1902, was 2.51.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—DEATH-RATE PER
10000 POPULATION FROM SCARLET FEVER—1873-1903.



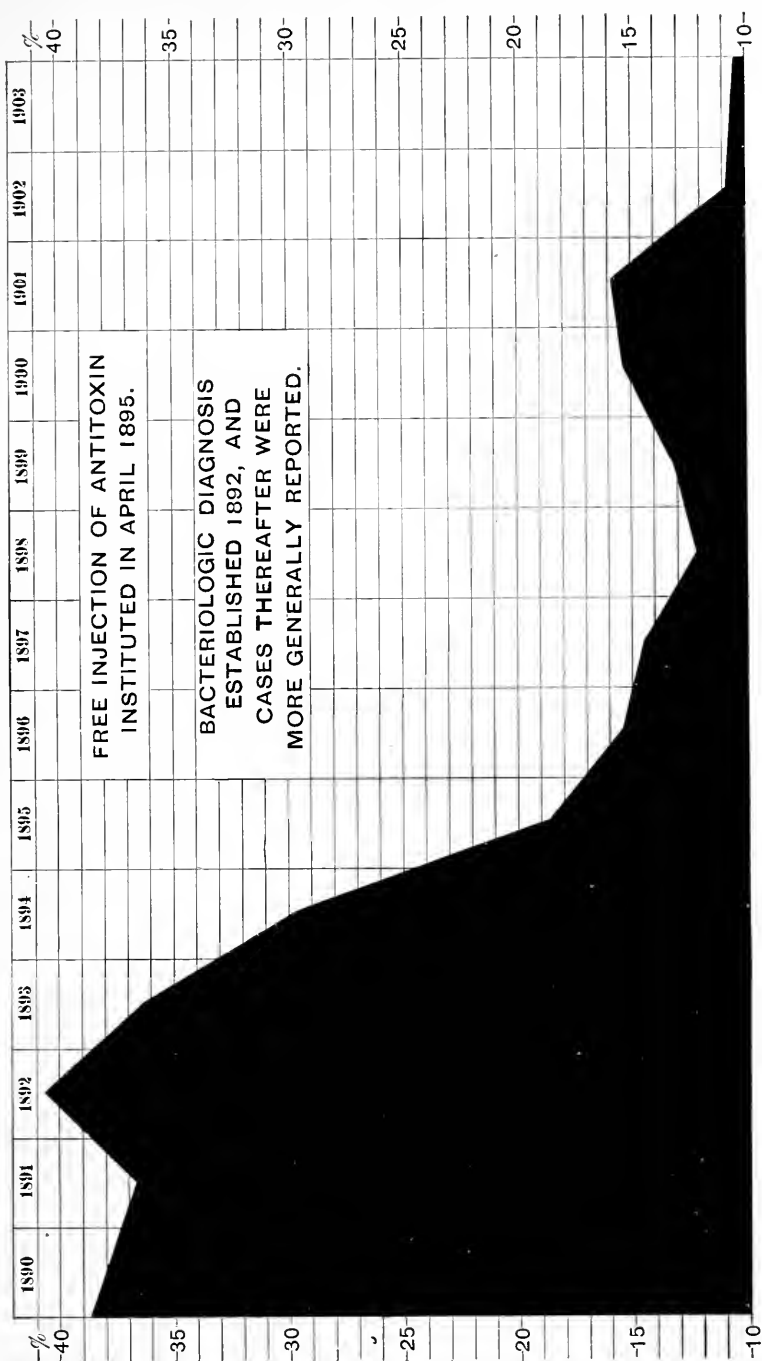
This and the two following charts show clearly and unmistakably the beneficial effect of the use of diphtheria antitoxin in the treatment of diphtheria and croup. Note the fall of the death-rate since 1895, the year of the institution of free antitoxin injection by this Department. The early injection of a sufficient amount of antitoxin has worked wonders in the treatment of this scourge of early childhood.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)--DEATH-RATE.
PER 10000 POPULATION FROM DIPHTHERIA AND CROUP--1873-1903.



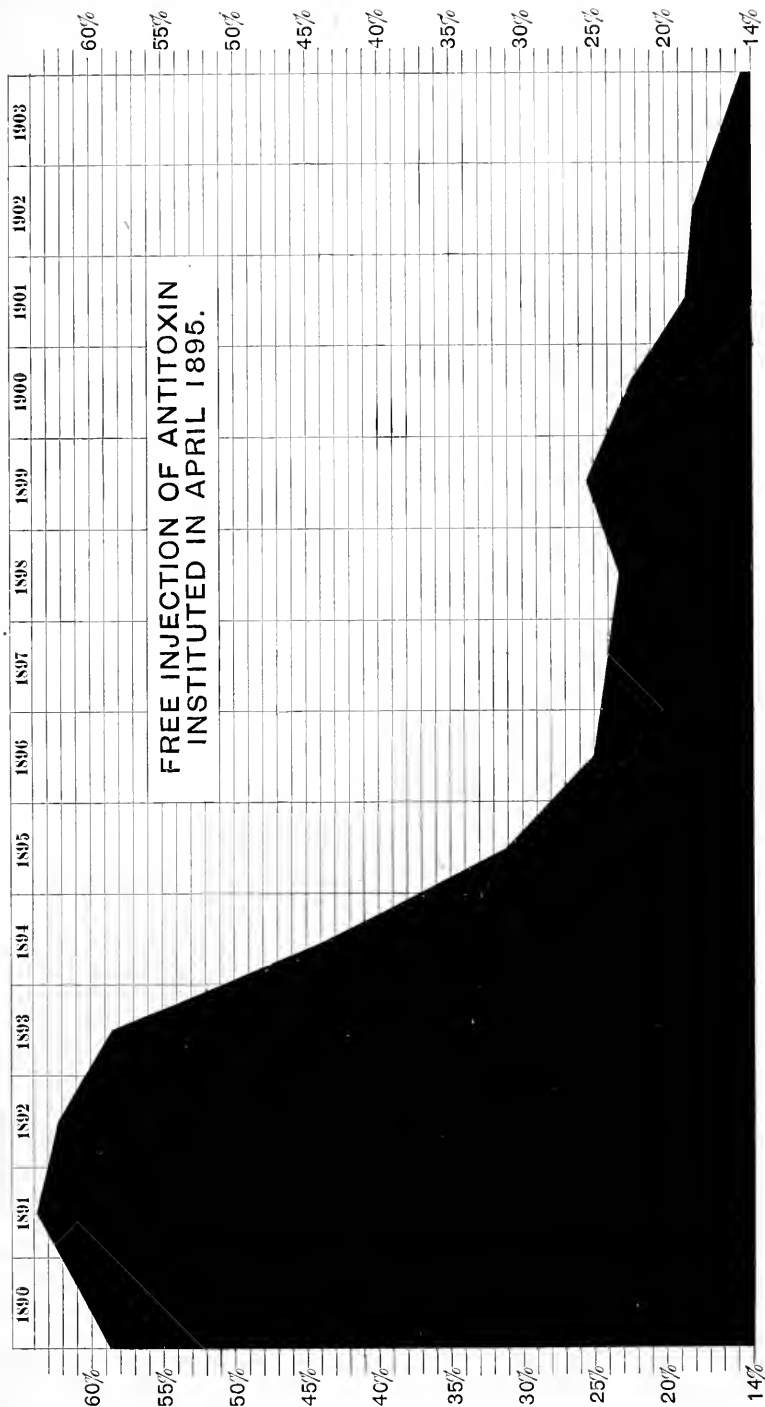
This chart, representing the case fatality from diphtheria and croup in the old City of New York, is one of the most instructive of the group. The introduction of the use of antitoxic serum in the treatment of this disease was begun in the year 1894, and the reduction in the case fatality was remarkable; since the free injection of antitoxin in 1895 by the Department, thousands of lives have been undoubtedly saved by its use.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—CASE FATALITY
FROM DIPHTHERIA AND CROUP—1890-1903.



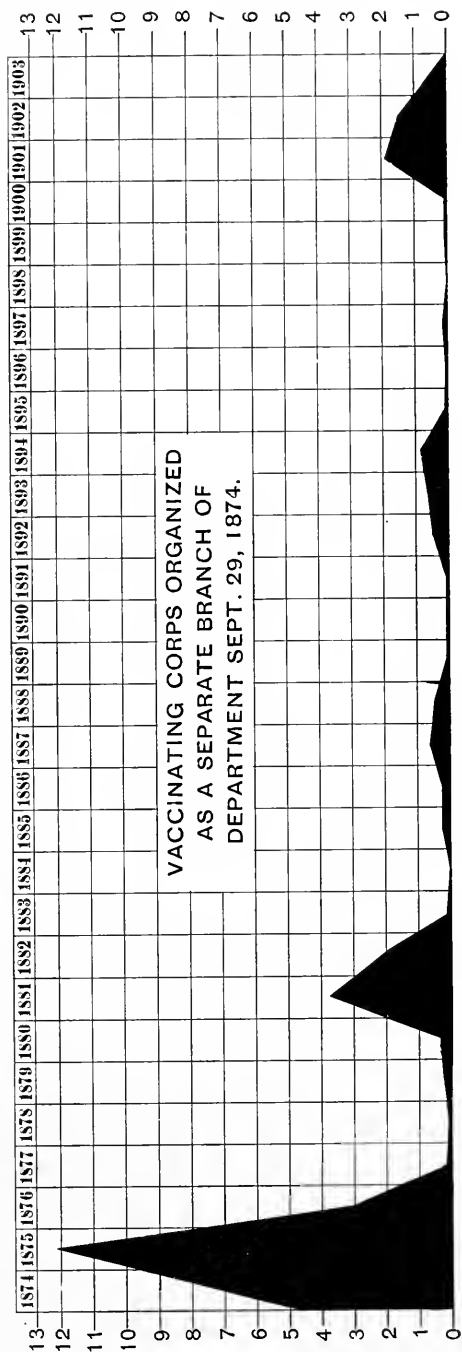
The chart is very similar to that on previous page ; it shows that the case fatality has not been lowered to the same point in Brooklyn as in the former City of New York, the explanation of which is that diphtheria antitoxin has not been used to the same extent by the physicians of Brooklyn as it has been in the Borough of Manhattan and The Bronx.

CITY AND BOROUGH OF BROOKLYN—CASE FATALITY FROM DIPHTHERIA AND CROUP—1890-1903.



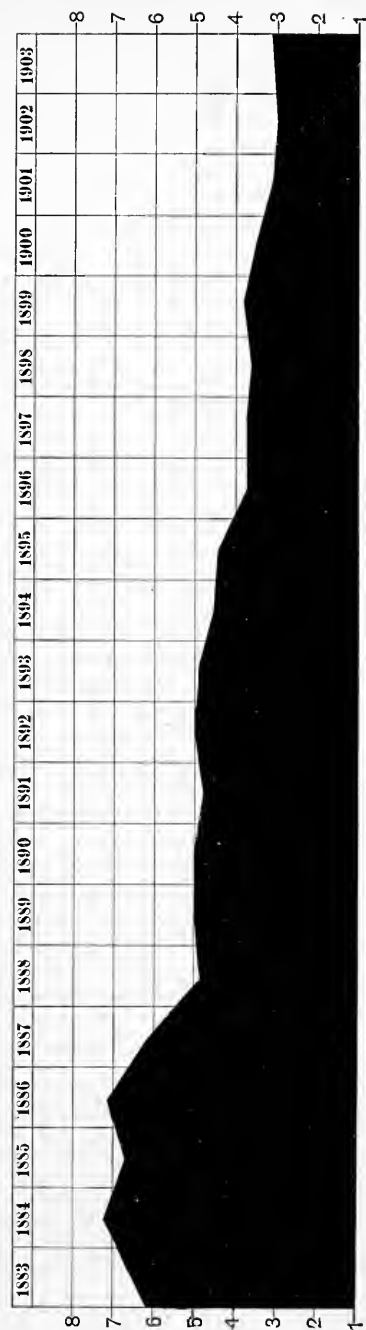
There is no better argument, if one should be deemed necessary, in favor of compulsory vaccination than a glance at the accompanying chart. Look at the death-rate in the year 1875 and compare it with any one year since that date, and it will be seen that a decrease has taken place varying from 75 per cent. in 1881, to nearly 100 per cent. in 1903. The minor outbreaks in 1881, 1901 and 1902, were due to importation of the disease into the city, and the accumulation of non-immunes within the city, who, coming in contact with the primary cases, contracted the disease, and thus became foci of infection themselves. These recurrent waves will undoubtedly return every six or seven years, until compulsory and continuous vaccination is adopted.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—DEATH-RATE
PER 10000 POPULATION FROM SMALL-POX—1874-1903.



The lowering of the death-rate of children under 15 years of age from tuberculosis of the lungs and the meninges in the old City of New York is shown in this chart, the decrease of the rate from 1883 to 1903 being about 50 per cent.

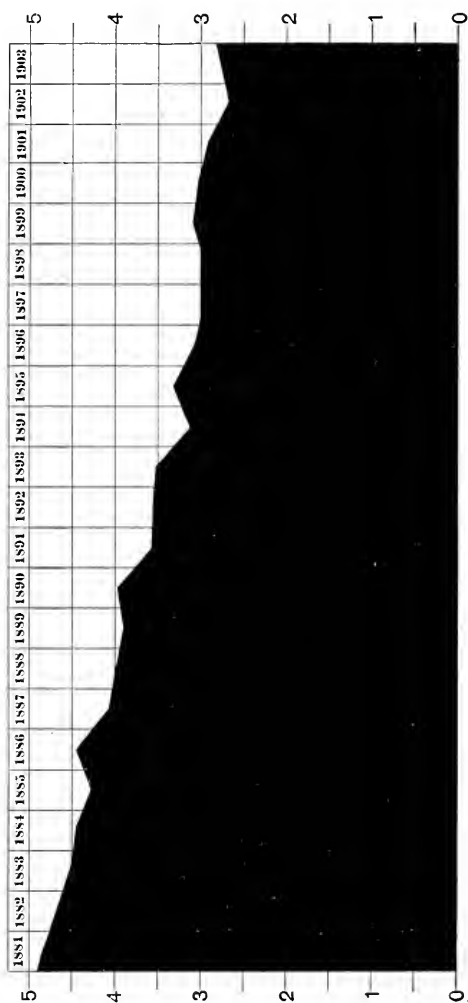
OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—DEATH-RATE PER
10000 OF ENTIRE POPULATION FROM PULMONARY TUBERCULOSIS AND TUBERCULAR
MENINGITIS COMBINED OF CHILDREN UNDER 15 YEARS OF AGE—1883-1903.



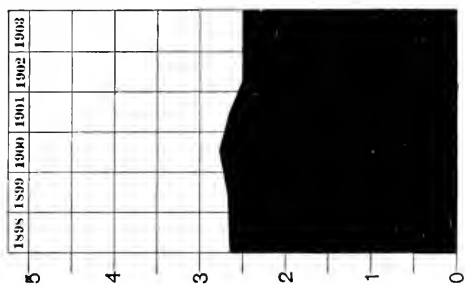
The fight that has been waged for the extermination of tuberculous diseases in recent years has resulted in a considerable decrease in the death-rate from tuberculosis, as shown on the accompanying chart. The decrease has taken place mainly in the rate from tuberculosis of the lungs, the rate from which was 4.27 in 1870 and 2.41 in 1903 in the former City of New York, a decrease of over 43 per cent. The decennial rates were: 1870-1879, 4.02; 1880-1889, 3.78; and 1890-1899, 2.78. In 1900, the rate was 2.57; 1901, 2.50; 1902, 2.29, and 1903, 2.41.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE
BRONX)—DEATH-RATE PER 1000 POPULATION FROM ALL

TUBERCULOUS DISEASES—1881-1903.

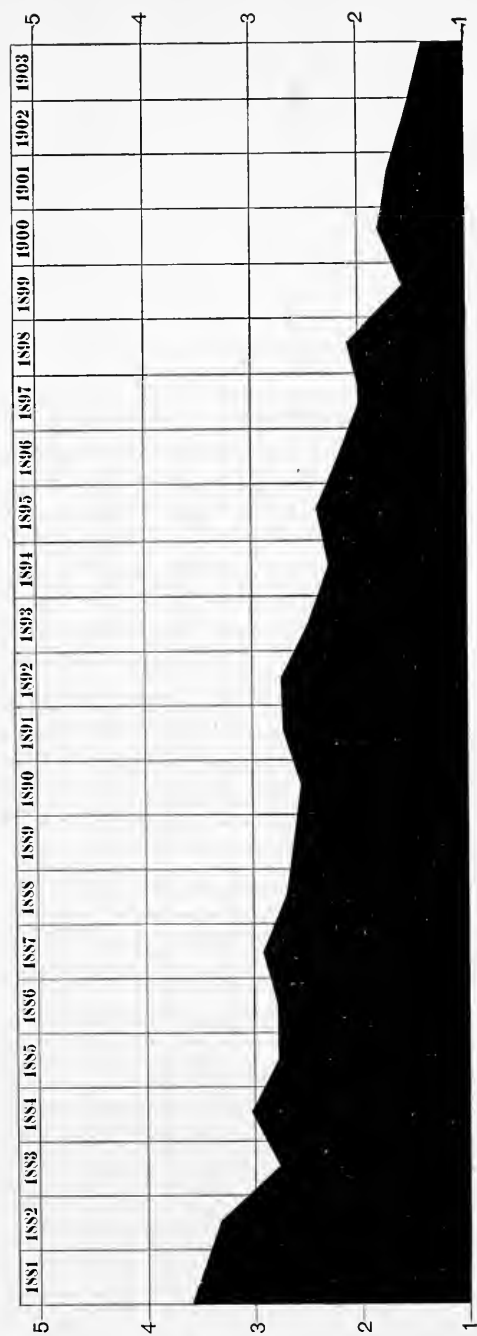


GREATER CITY,
1898-1903.



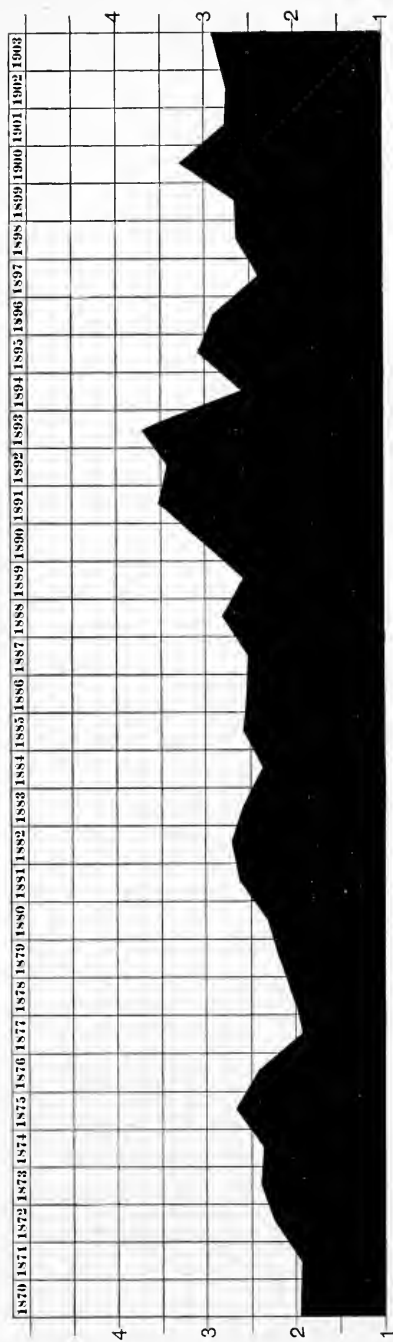
This chart shows a decrease of 62 per cent. in the deaths from all diarrhœal diseases for the year 1903, as compared with 1881. This decrease has been almost entirely confined to the deaths of children under five years of age, and is attributable to a number of causes, all operating in the direction of pure food and air, the most prominent among which are: a supply of purer milk by reason of official watchfulness; the pasteurization of milk through the instrumentality of private philanthropic enterprise; the education of the mother and nurse as to the necessity of constant vigilance over the cleanliness of infants' food, especially the milk; the opening of small parks; clean streets; and the establishment of the Floating Hospital of St. John's Guild.

OLD CITY OF NEW YORK--DEATH-RATE PER 1000 POPULATION FROM ALL DIARRHOEAL
DISEASES--1881-1903.



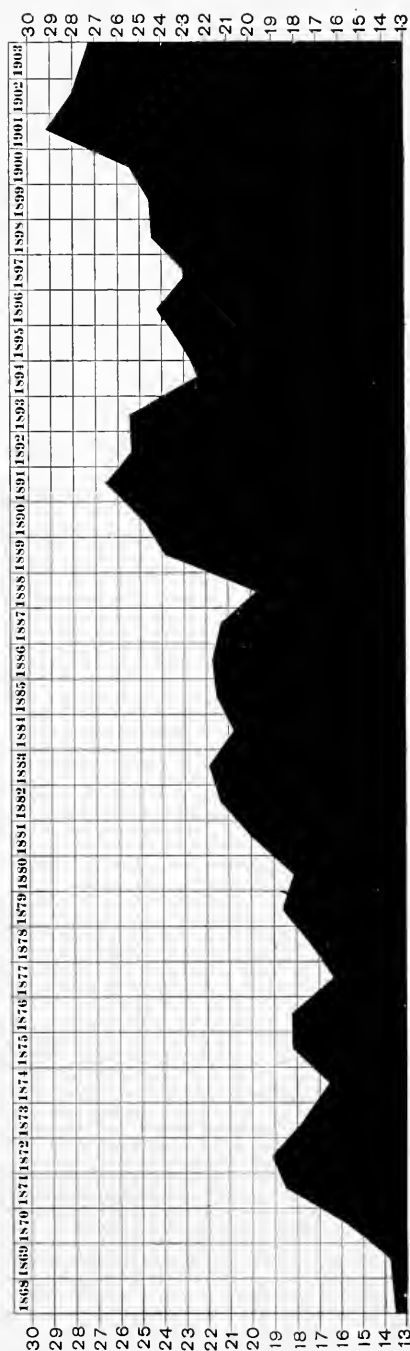
This chart is one of the few on which an increase in the death-rate is shown. It will be seen that the tendency has been upward since 1870, that only in the year 1877 has the rate approached that of 1870, that beginning with the year 1890 (la grippe made its appearance as a factor in the increased death-rate from respiratory diseases in December 1889), the tendency has been more markedly upward due in part to the advent of influenza as a causative factor in the production of pneumonia, and in part to the same general causes explainable of the increase in the rates from Bright's and heart diseases, as stated on the following page.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—DEATH-RATE
PER 1000 POPULATION FROM PNEUMONIA—1870-1903.



On the chart opposite it will be seen at a glance, that the death-rate from these two organic diseases has doubled within thirty-five years. There is hardly any doubt that most of this phenomenal increase is due to causes operating during the entire period, chief among which are the increased nervous wear and tear of keener competition in business life, the consequent recourse to stimulating agents, unsafe and destructive, the over indulgence in the pleasure of the table with absence of active mental and physical exercise, and the influence of the return of influenza as a potent factor in mortality, beginning in 1889 and continuing with more or less activity since that date.

OLD CITY OF NEW YORK (PRESENT BOROUGHS OF MANHATTAN AND THE BRONX)—DEATH-RATE
PER 10000 POPULATION FROM BRIGHT'S AND HEART DISEASES COMBINED—1868-1903.





APPENDIX.



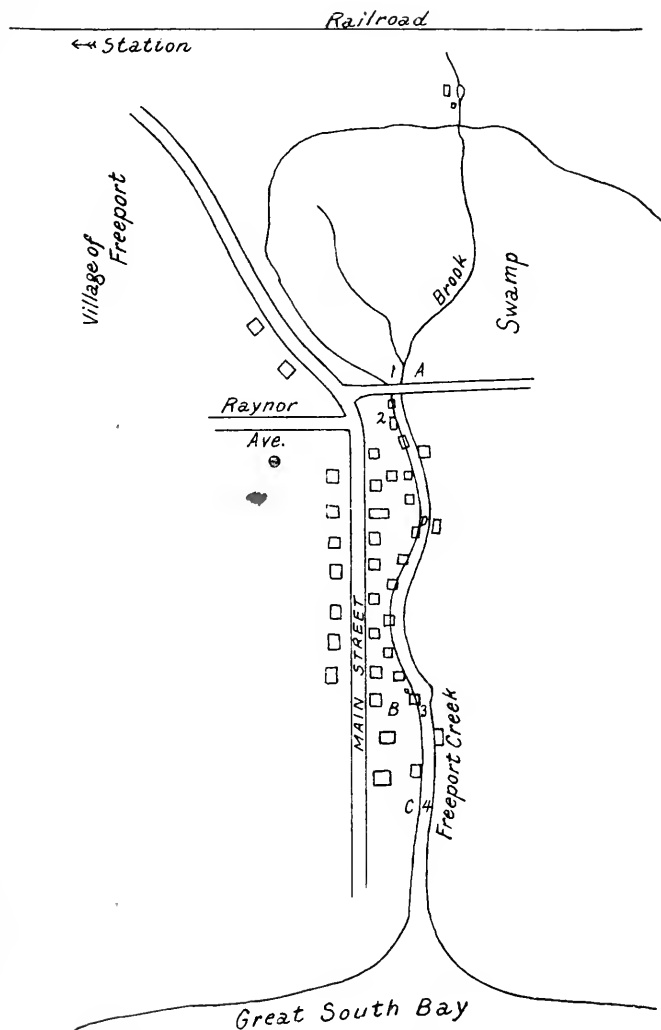
*Study I.*REPORT OF THE INVESTIGATIONS IN REGARD TO THE
CULTIVATION AND SALE OF OYSTERS IN THE CITY OF
NEW YORK DURING THE YEAR 1904, WITH PAR-
TICULAR REFERENCE TO TYPHOID FEVER.

During the first quarter of the year, 1904, there were reported to the Department of Health, two hundred (200) cases of typhoid fever, occurring in the Borough of Manhattan. A careful and painstaking investigation of these cases was made with a view of determining, if possible, the source of infection. The results of this investigation are as follows:

Seventeen (17) of these patients were known to have been out of the city, before they became ill, for a longer time than the period of incubation. The disease was, therefore, not contracted here; twenty-eight (28) were known to have been directly exposed to the disease and, probably, contracted it in that manner; one hundred and six (106) were known to have been occasional or habitual consumers of raw milk; eight (8) persons were consumers of both raw oysters and raw milk. All, of course, drank water in greater or less quantity. Thirty per cent. (30%) of the cases were not consumers of raw milk or oysters, had not been out of the city for the month preceding the onset of the disease, leaving, apparently, only the drinking water as a source of infection. There is, however, a very great possibility of error in any such investigation, due to the fact that the patient has generally been ill two weeks or more at the time the investigation begins. If we add to this a period of incubation of from two to three weeks, we find ourselves investigating facts and occurrences a month or more past and gone. An accurate memory of details more than a month old is a rarity, even in health. When we consider also that our questions are asked of persons who are more or less ill, or in many cases, of the friends or relatives of persons too ill to be interrogated, I think we may well consider the results of such an investigation to be of no great value.

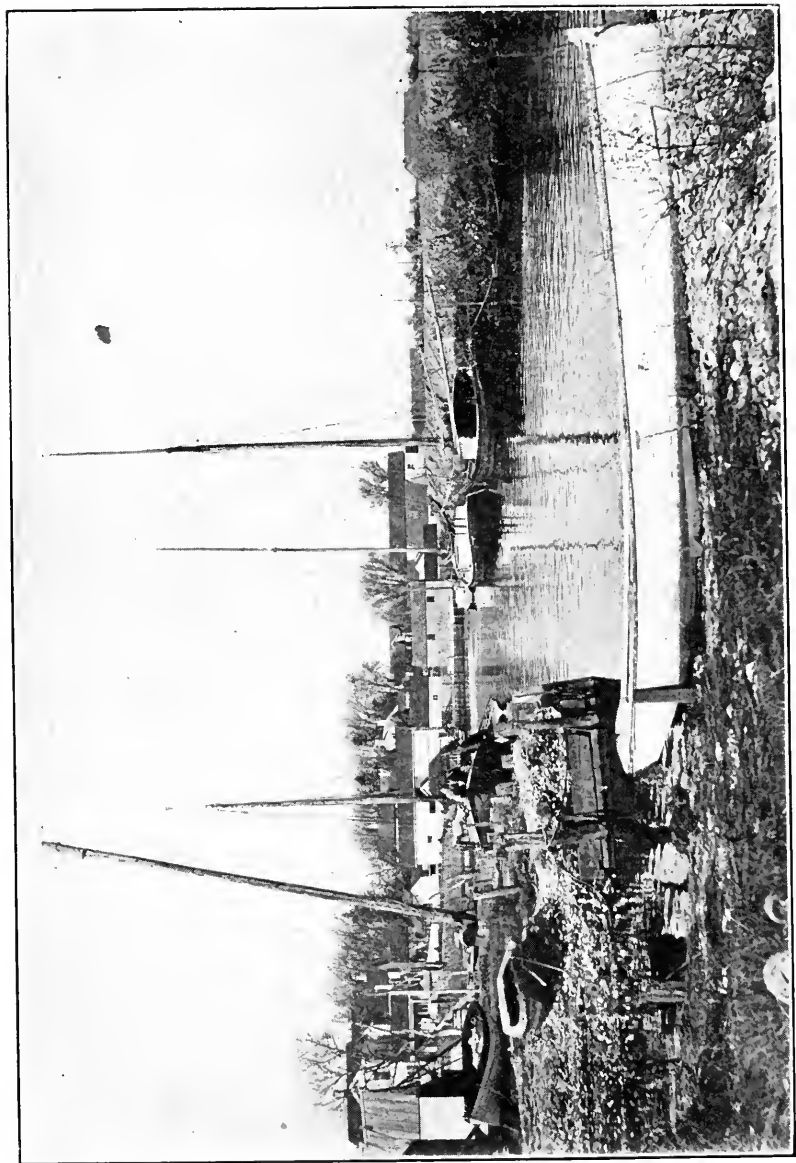
For the prevention of typhoid fever, therefore, our efforts should not be limited to the investigation of cases of the disease, but should be largely confined to the possibility of contamination of ingested material, whether food or drink, with excreta. Whether the contaminating excreta come from typhoid patients or not makes little practical difference. If the typhoid be not present to-day, it may be present to-morrow, next month or next year. We know that typhoid fever is largely transmitted by contaminated drinking water or contaminated milk. It is also probable that the oyster may often be an agent in transmitting this disease. It is known that the oyster, when exposed to infection, will hold the infected material for a longer or shorter time. The following facts and pictures show that it is often so exposed:

On the south side of Long Island, near the shore of South Oyster bay, is the little village of Freeport. Near the village and running into Oyster Bay is the Freeport creek, as shown in this sketch.



MAP OF FREEPORT AND FREEPORT CREEK, SHOWING LOCATION OF DWELLINGS AND OYSTER HOUSES.

Near it are houses, many having out door privies, the drainage from which passes more or less directly into the creek. On the banks of the creek are about thirty (30) oyster houses. These houses are so arranged that the first floor is a little higher than the water at low tide; at high tide the water covers the floor to a depth of a few inches. The oysters are obtained from the oyster beds in South Oyster Bay, and taken in boats up the creek and placed on the first floor of these oyster houses for the purpose of what is called "drinking" or freshening. The water of the creek being much less salt than that of the bay, is absorbed by the oysters, which become thereby "fattened." This picture shows the creek, with some of the dwellings near it, and some of the oyster boats.

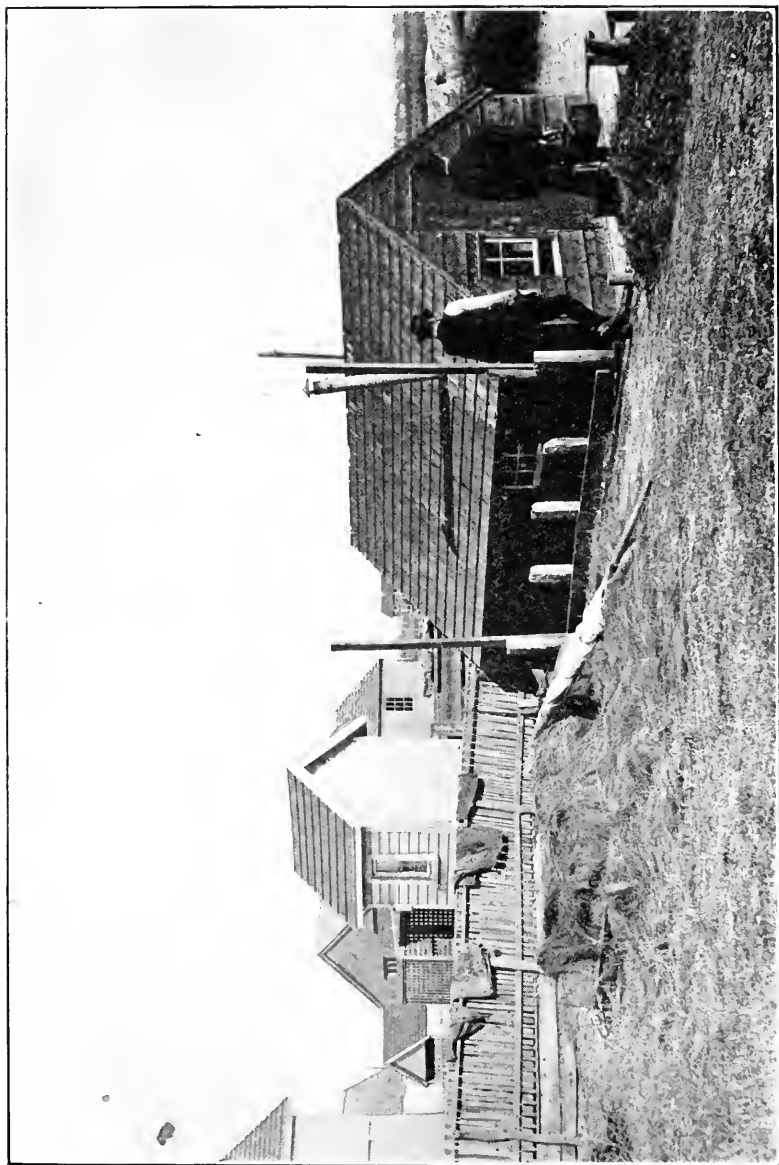


FREEMONT CREEK, NEAR ITS MOUTH, SHOWING OYSTER BOATS AND A FEW OYSTER HOUSES.



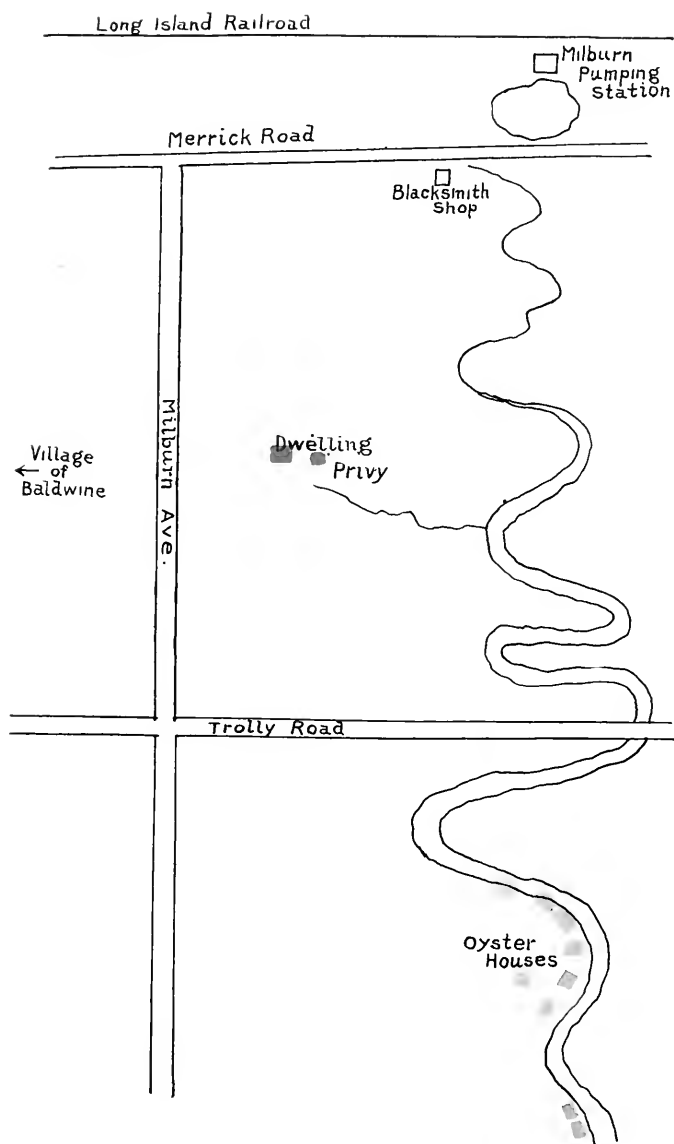
FREEPORT CREEK, SHOWING OYSTER HOUSES.





FREEPORT CREEK, SHOWING OYSTER HOUSE AND PRIVY SIDE BY SIDE ON ITS BANK.
This picture demonstrates very plainly the existing conditions at this place. On the right is an oyster house, and on the left, within five feet, a primitive village privy. Specimens of water have been taken from this creek and the presence of the colon bacillus demonstrated in large numbers.



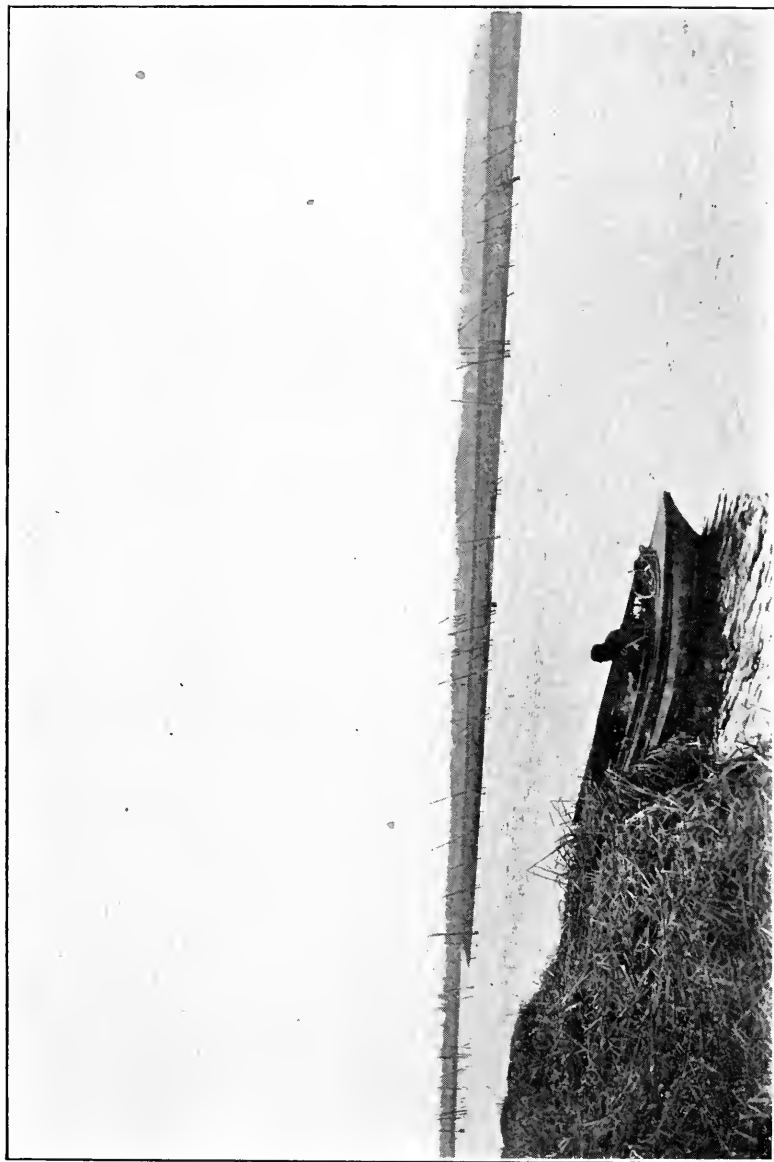


THIS SKETCH SHOWS THE CONDITIONS OBTAINING AT BALDWIN, A FEW MILES THIS SIDE OF FREEPORT.

At the present time the creek is apparently not contaminated with excreta, as it is beyond the outskirts of the village. Sooner or later, however, the town will extend to the banks of the creek, and contamination will occur.

Sources of possible contamination indicated in red. Situation of oyster houses indicated in blue.

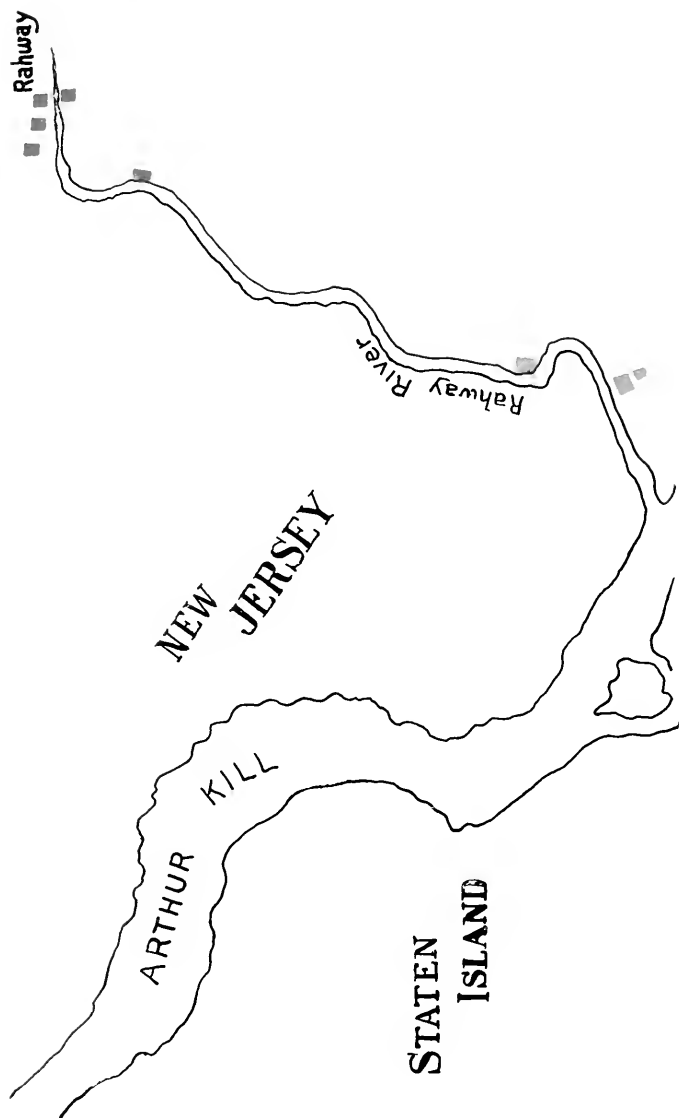




PLACE ON THE RAHWAY RIVER WHERE MOST OF THE FATTENING IS DONE.

The stakes show where the floats are generally moored.





SKETCH SHOWING PART OF THE ARTHUR KILL, SEPARATING STATEN ISLAND FROM NEW JERSEY, AND THE MAIN PART OF THE RAHWAY RIVER.

The oyster beds are in the Arthur Kill, and the oysters are taken up the Rahway River in floats, for freshening or fattening.

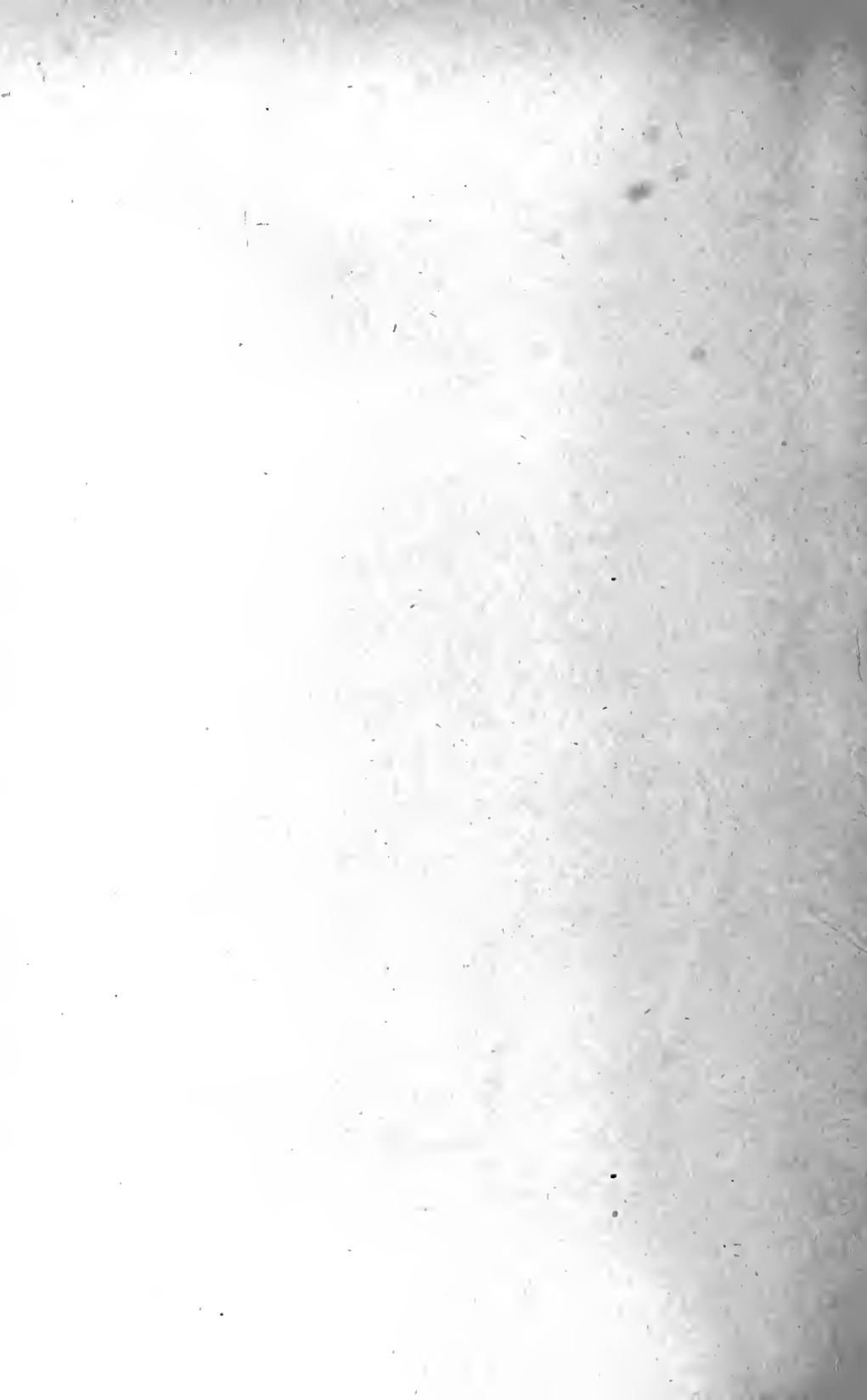
Sources of contamination indicated in red. Situation of oyster floats indicated in blue.

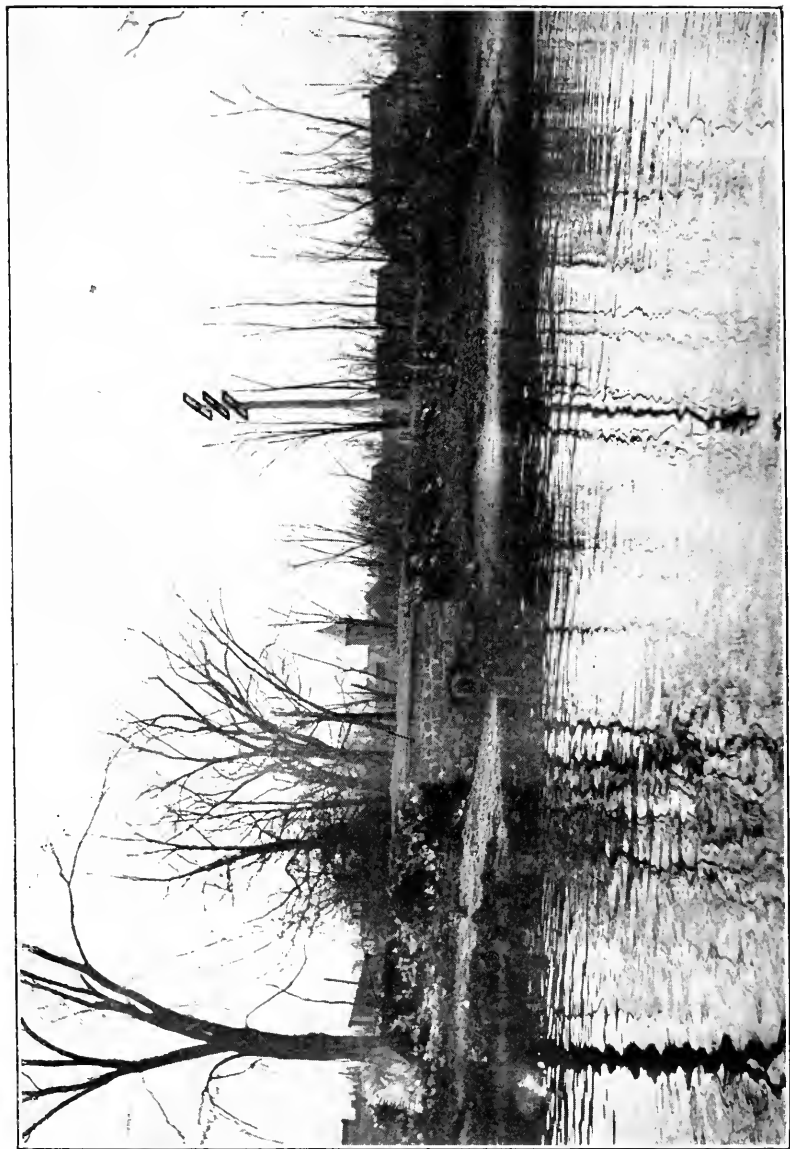




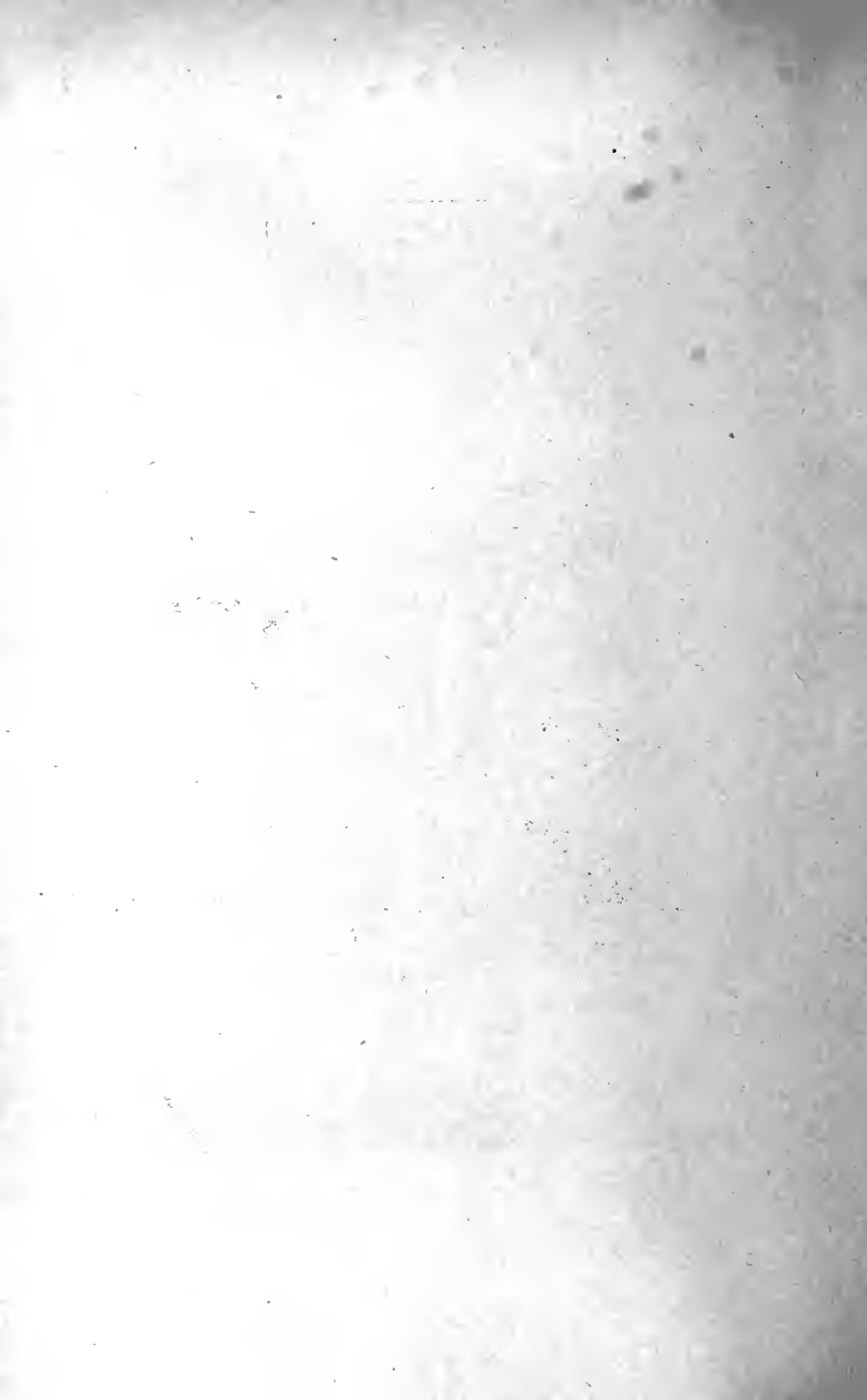
BRICKTOWN ON THE BANKS OF THE RAILWAY.

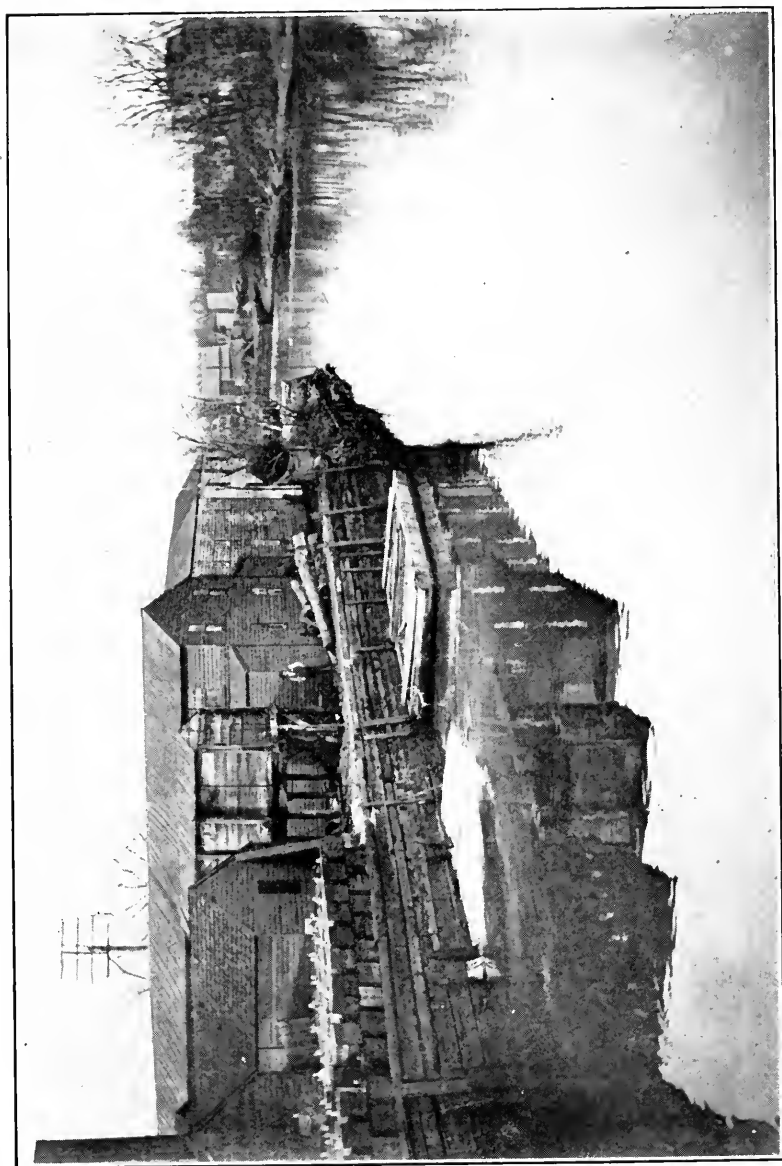
Picture shows opening of a sewer.





PART OF THE TOWN OF RAHWAY.
One of its sewers, opening into the Rahway River, is shown.

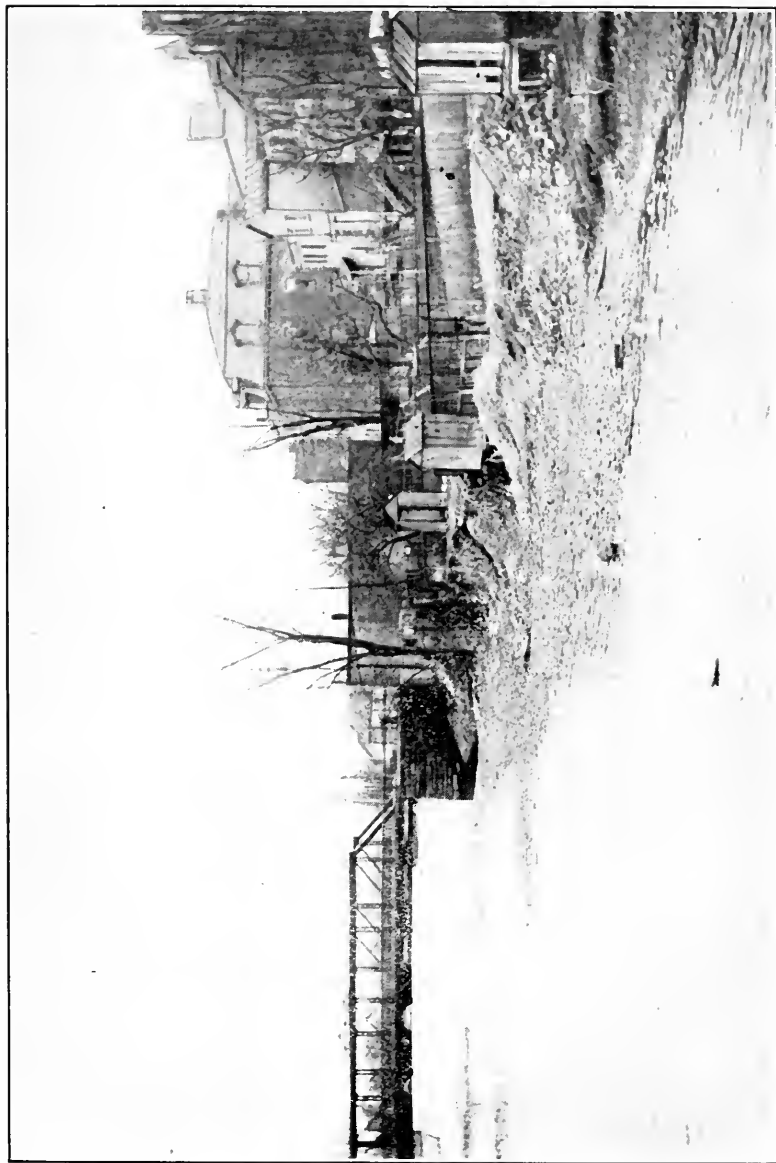




RAILWAY, SHOWING CHEMICAL WORKS ON THE SHORE OF THE STREAM.

The light colored material is some kind of chemical refuse, almost hiding the sewer outlet.

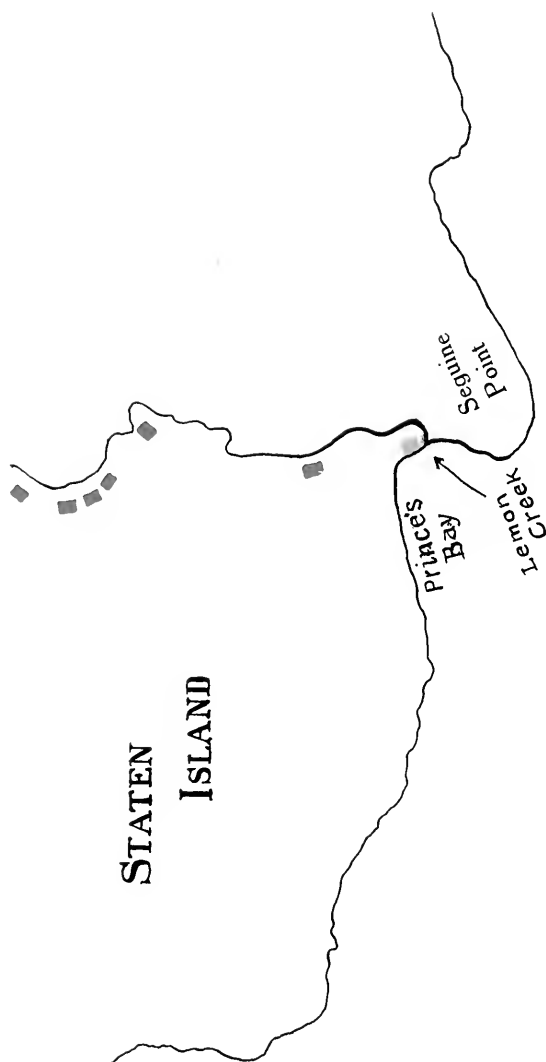




THE BANKS OF THE RAILWAY RIVER, AT RAILWAY, SHOWING A METHOD OF DISPOSAL
OF EXCRETA.

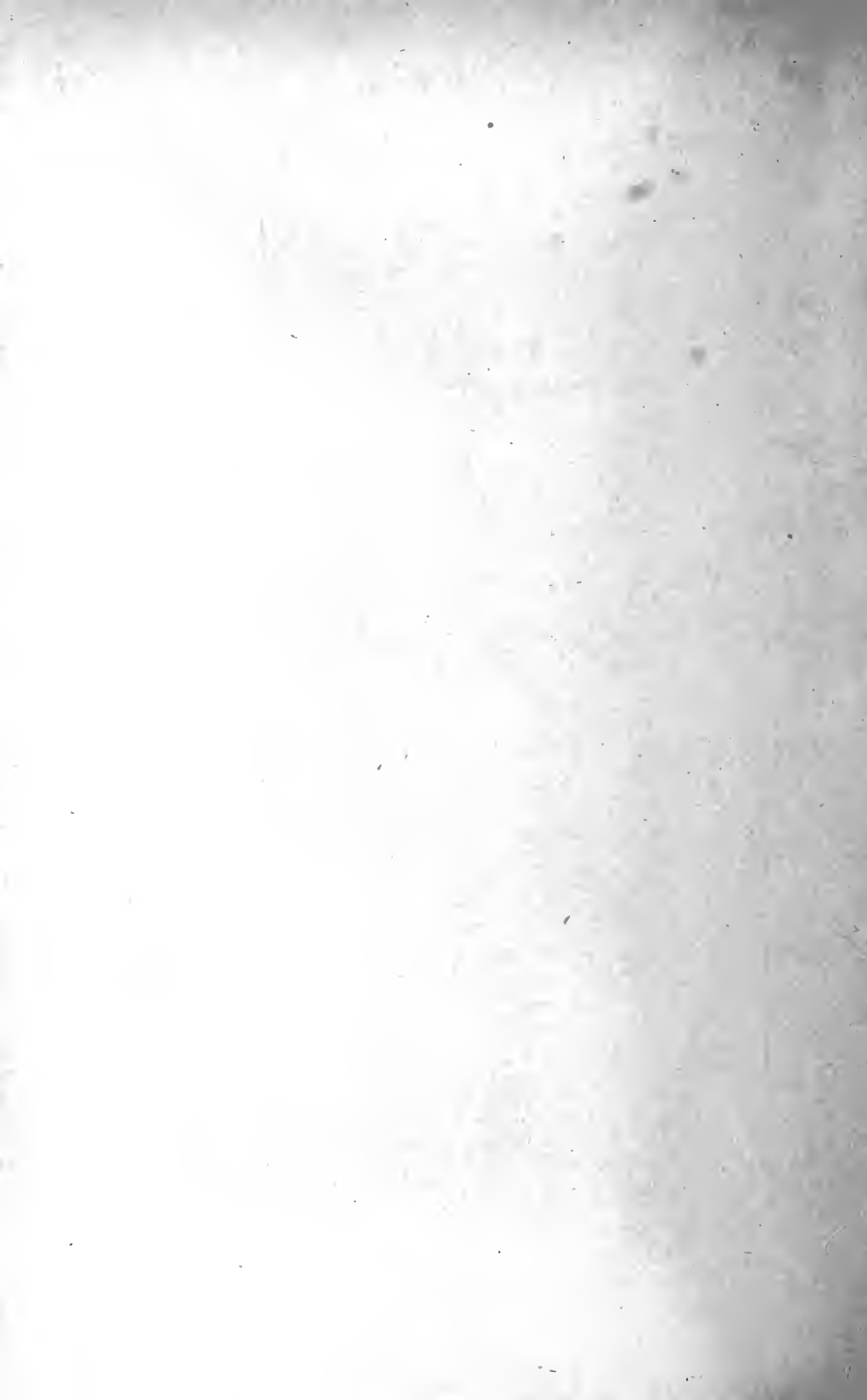
When the tide is high the water washes under these privies and removes the excreta.

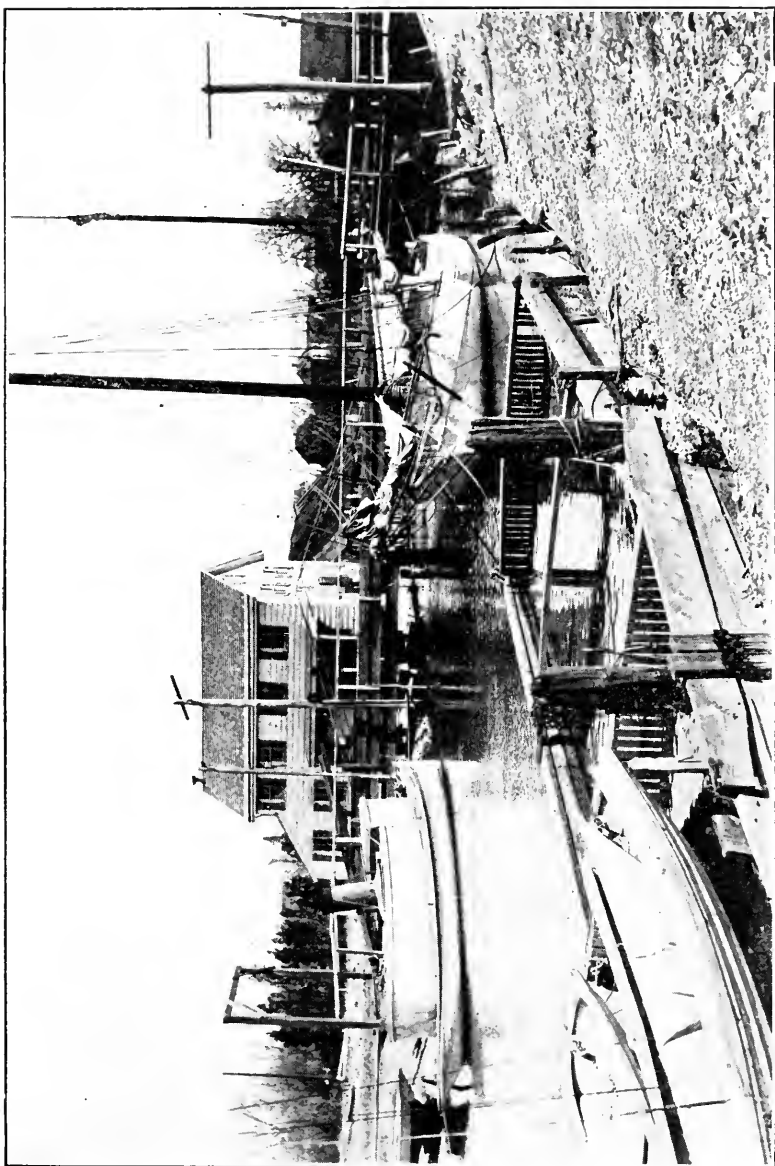




SKETCH SHOWING A PART OF PRINCE'S BAY AND LEMON CREEK, THE WATERS OF WHICH ARE USED BY THE OYSTERMAN FOR "FATTENING" THEIR OYSTERS.

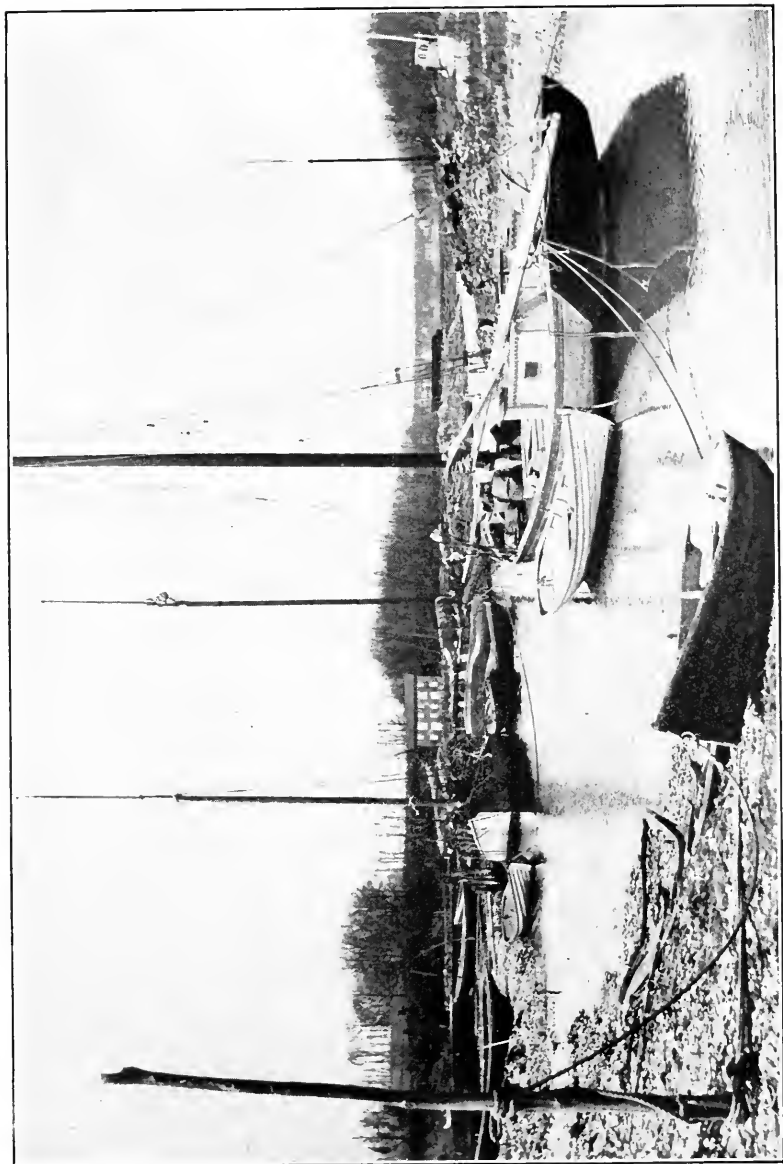
It also shows the points where oysters are freshened and where the stream is polluted. (Sources of contamination indicated in red. Places where oysters are freshened indicated in blue).





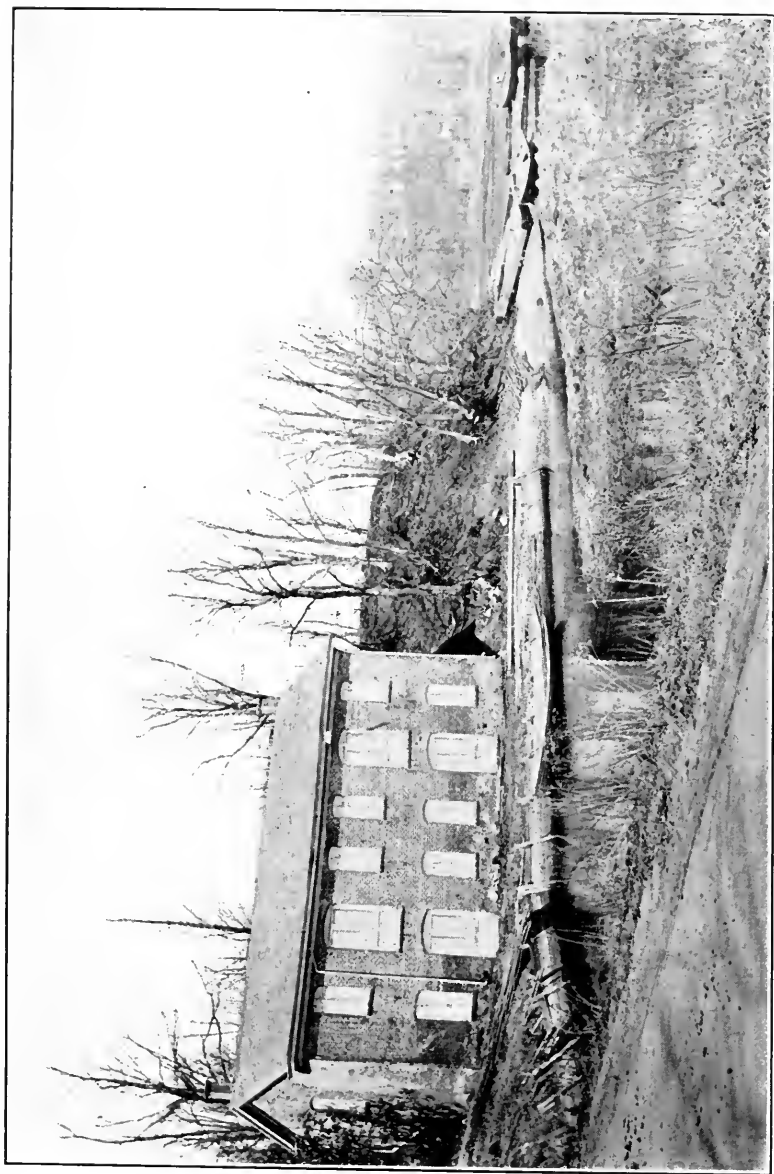
PICTURE TAKEN AT THE MOUTH OF LEMON CREEK, WITH AN OYSTER FLOAT IN THE FOREGROUND.



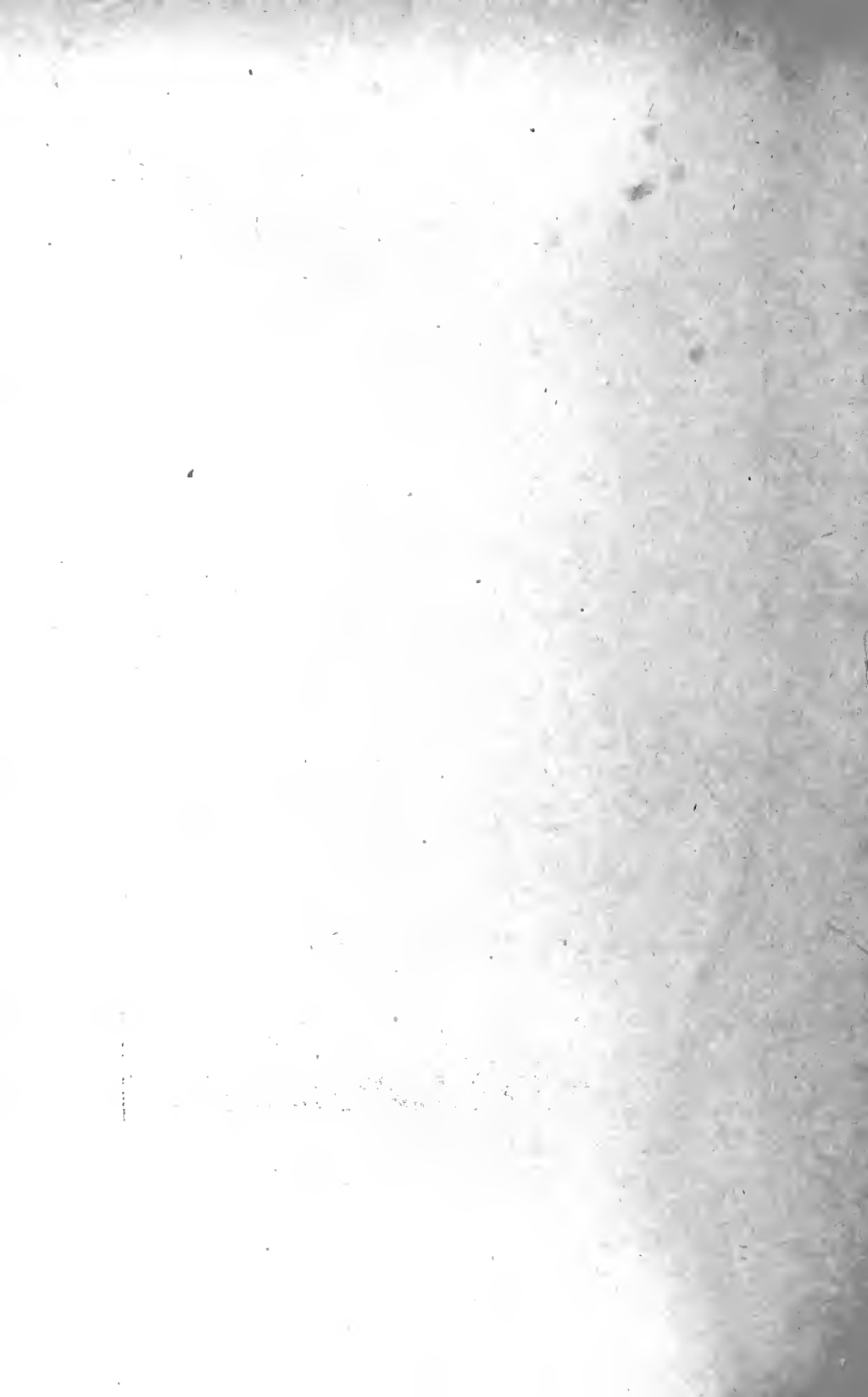


OYSTER BOATS FARTHER UP THE CREEK. A FACTORY WHERE OYSTERS ARE CANNED
IN THE DISTANCE.





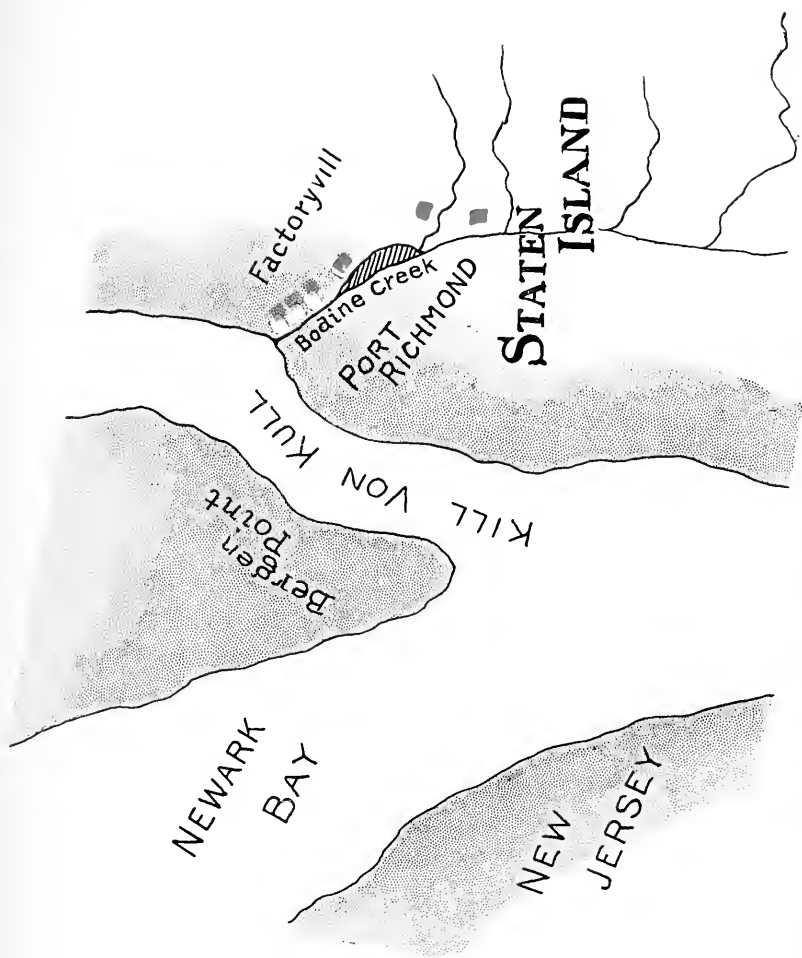
THE OYSTER FACTORY OR "CANNERY."





PICTURE OF A HOUSE ON THE BANKS OF LEMON CREEK, SHOWING A WATERCLOSET
OVER THE STREAM AND A HOUSE DRAIN DISCHARGING INTO THE CREEK.

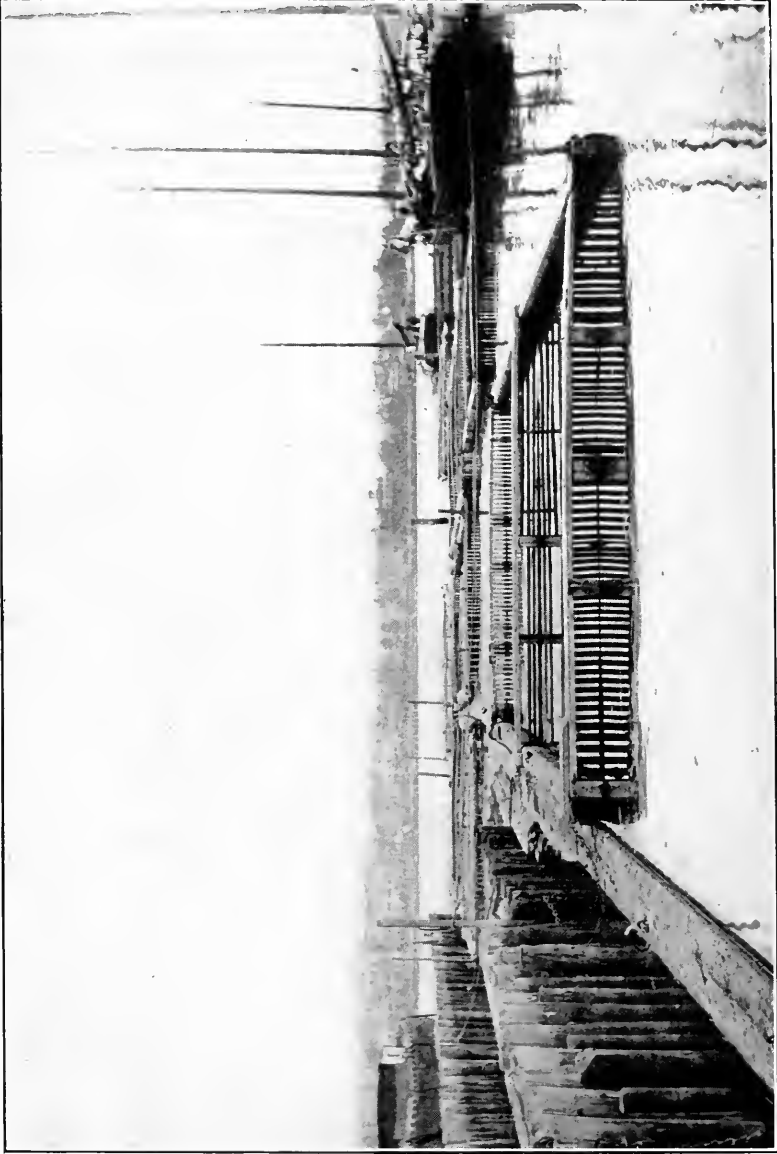




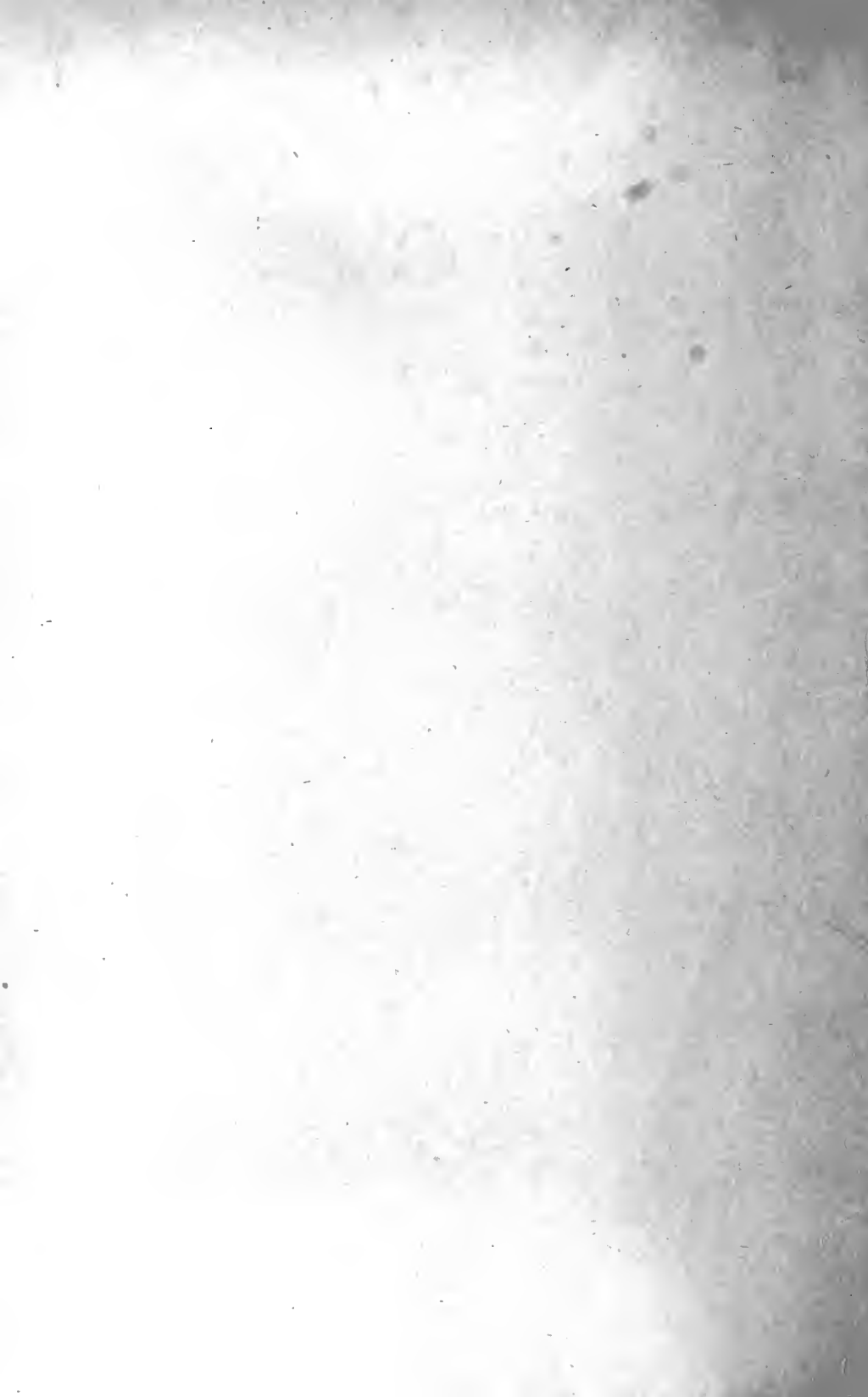
SKETCH OF THE NORTH SHORE OF STATEN ISLAND, SHOWING LOCATION OF THE TOWN OF PORT RICHMOND, ON THE KILL VON KULL.

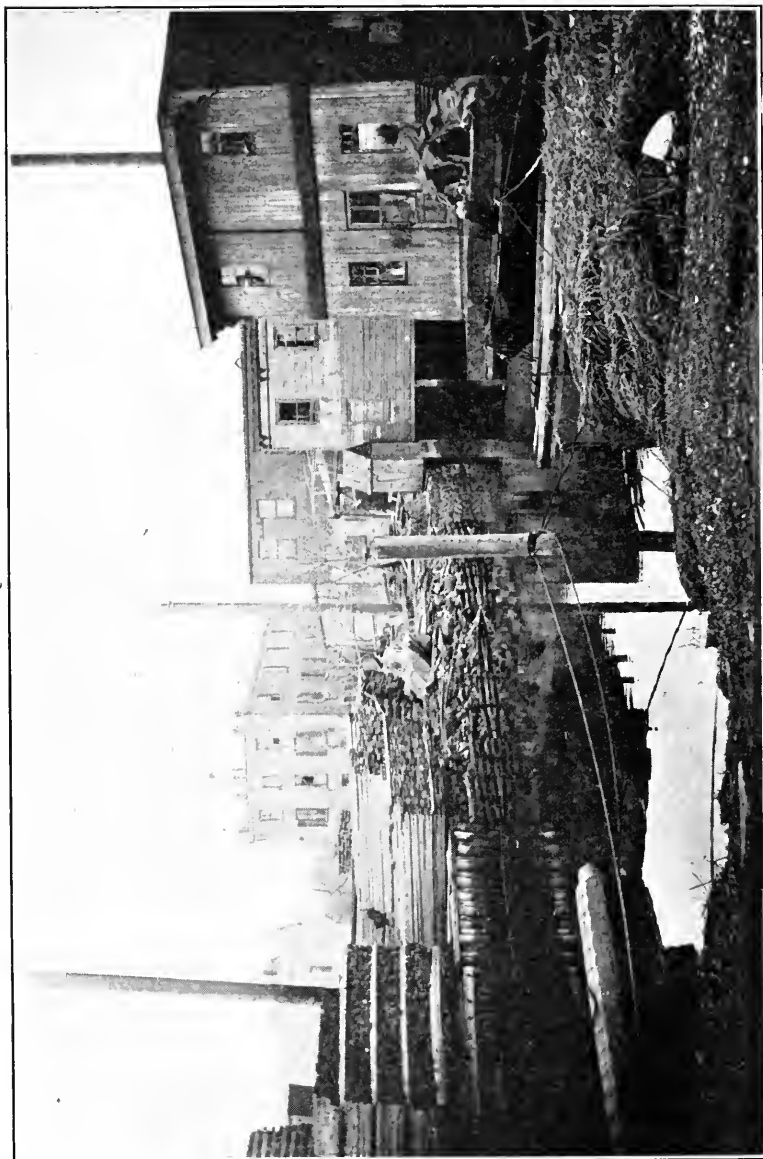
Running through the town and emptying into the Kill Von Kull is Bodine Creek. (Sources of pollution indicated in red. Places where oysters are freshened indicated in blue).





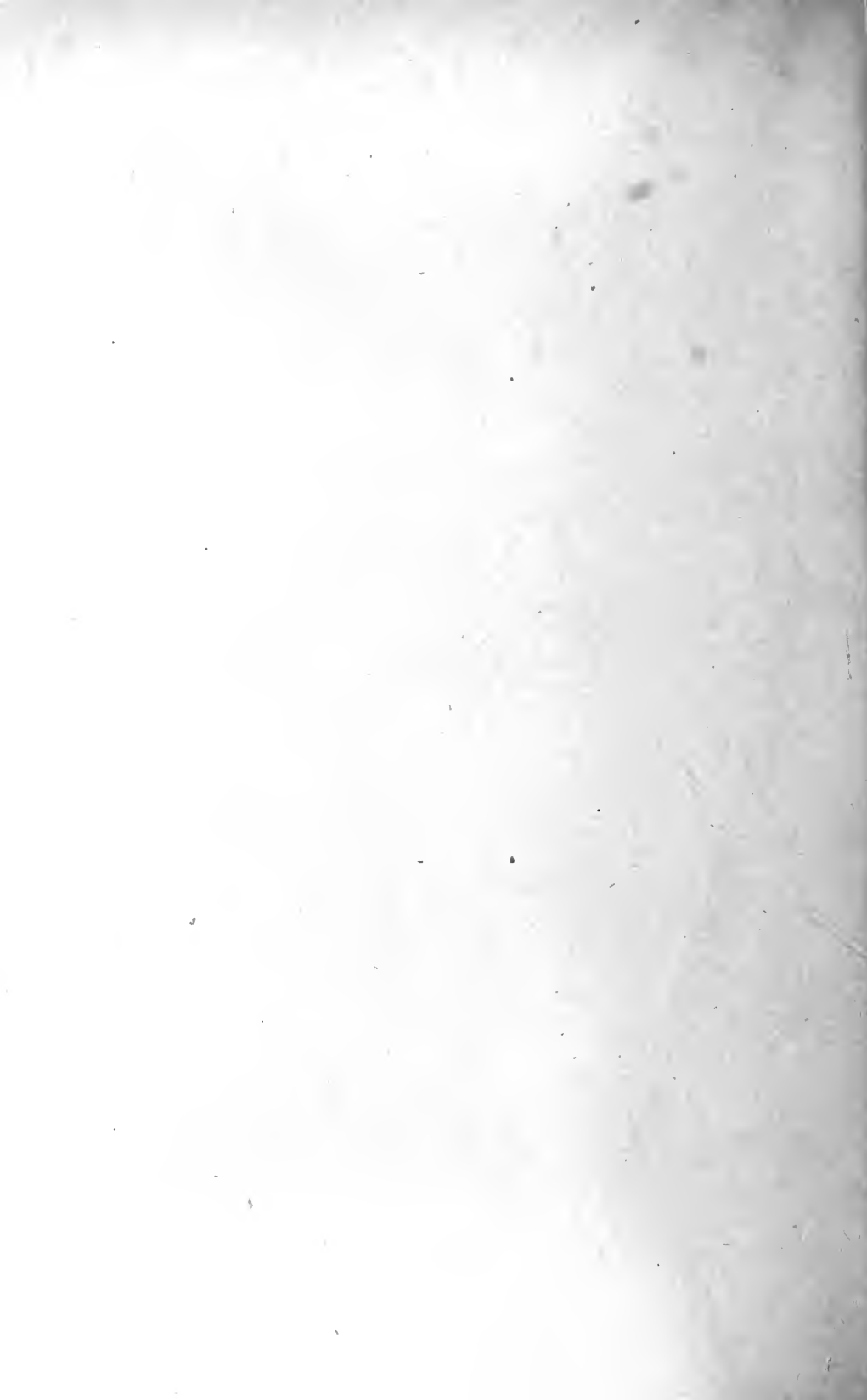
MOUTH OF BODINE CREEK, SHOWING OYSTER BOXES.

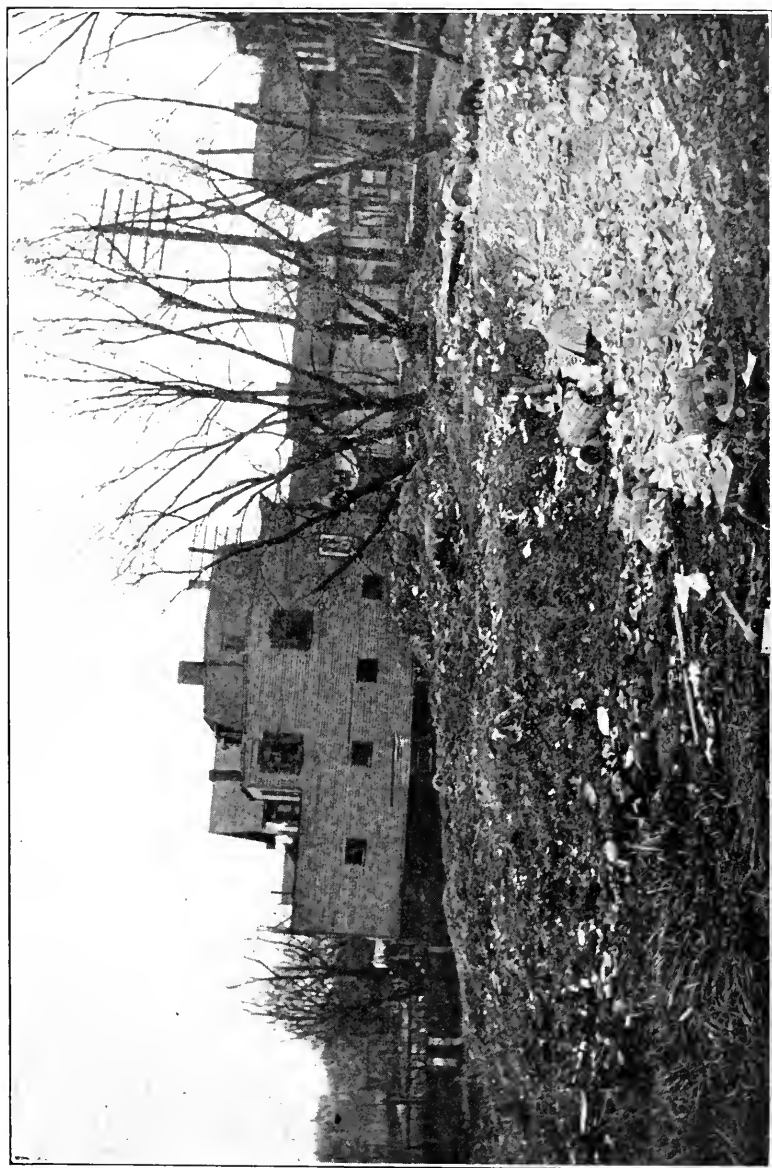




AN OYSTER BARGE OWNED BY A WHOLESALER DEALER WHO FRESHENS HIS OWN
OYSTERS IN FLOAT FASTENED UNDER THE STERN OF THE BARGE.

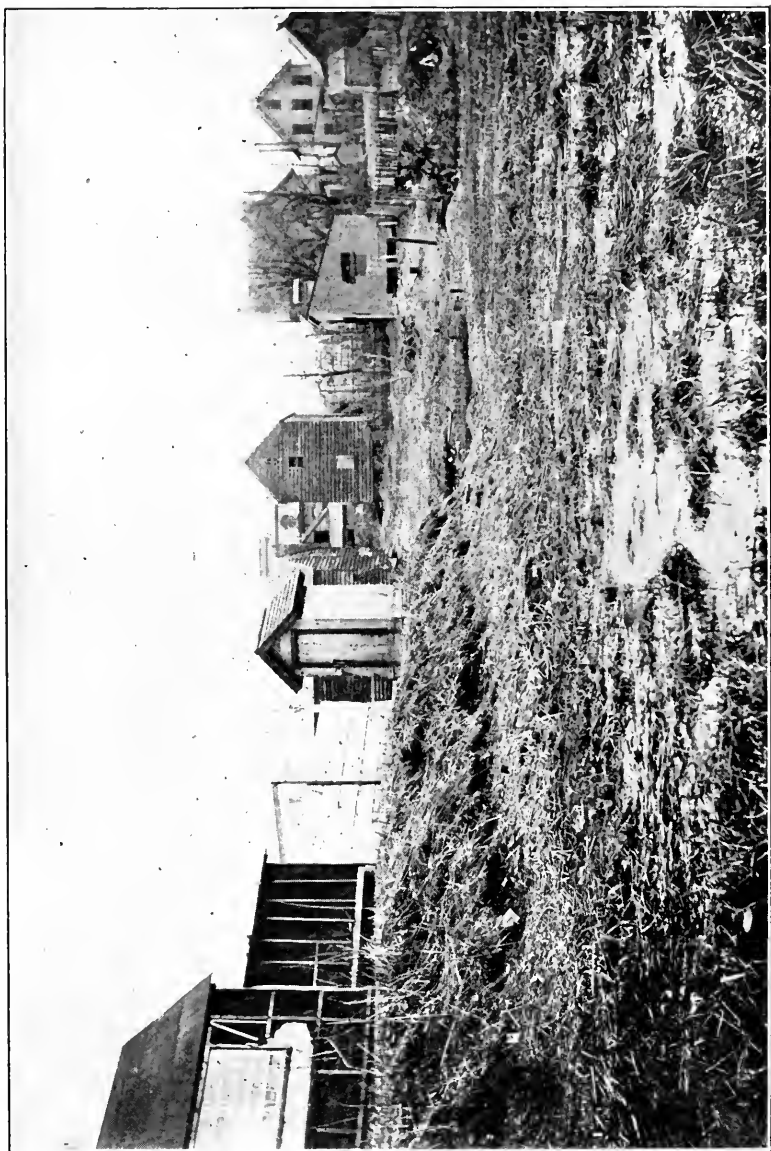
Only a few feet away is a privy.





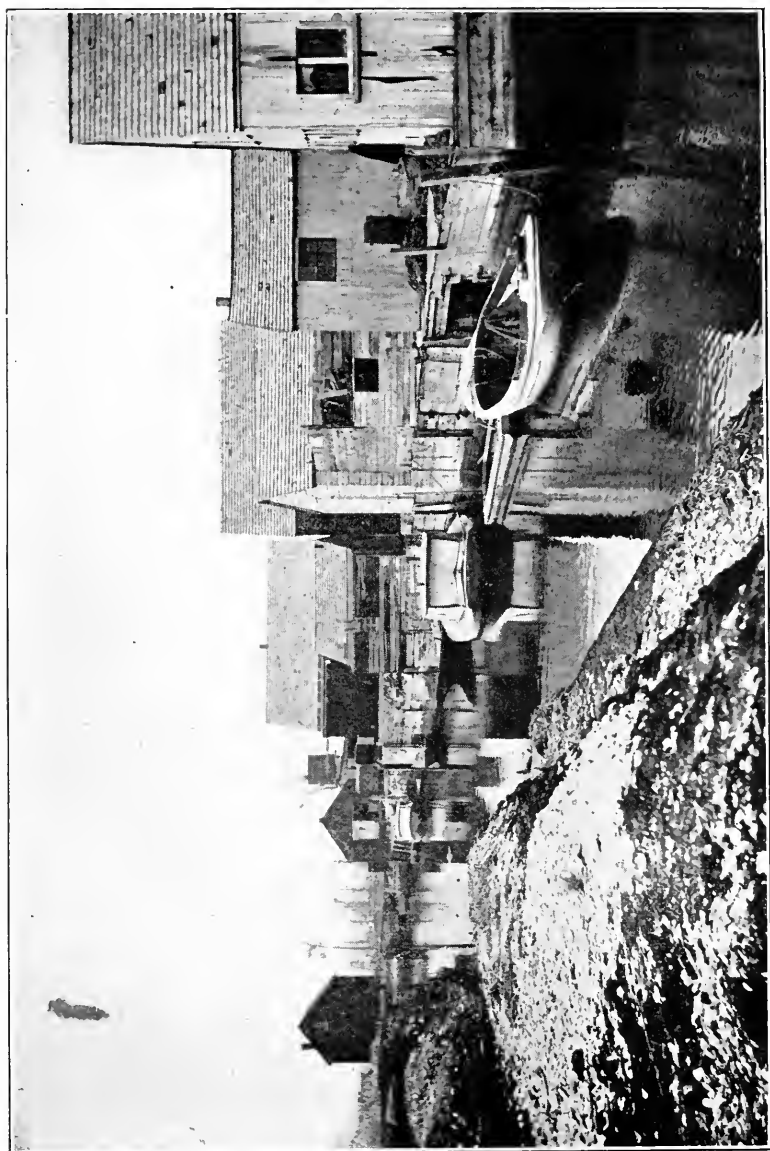
A GARBAGE AND REFUSE DUMP ON BANKS OF BODINE CREEK.





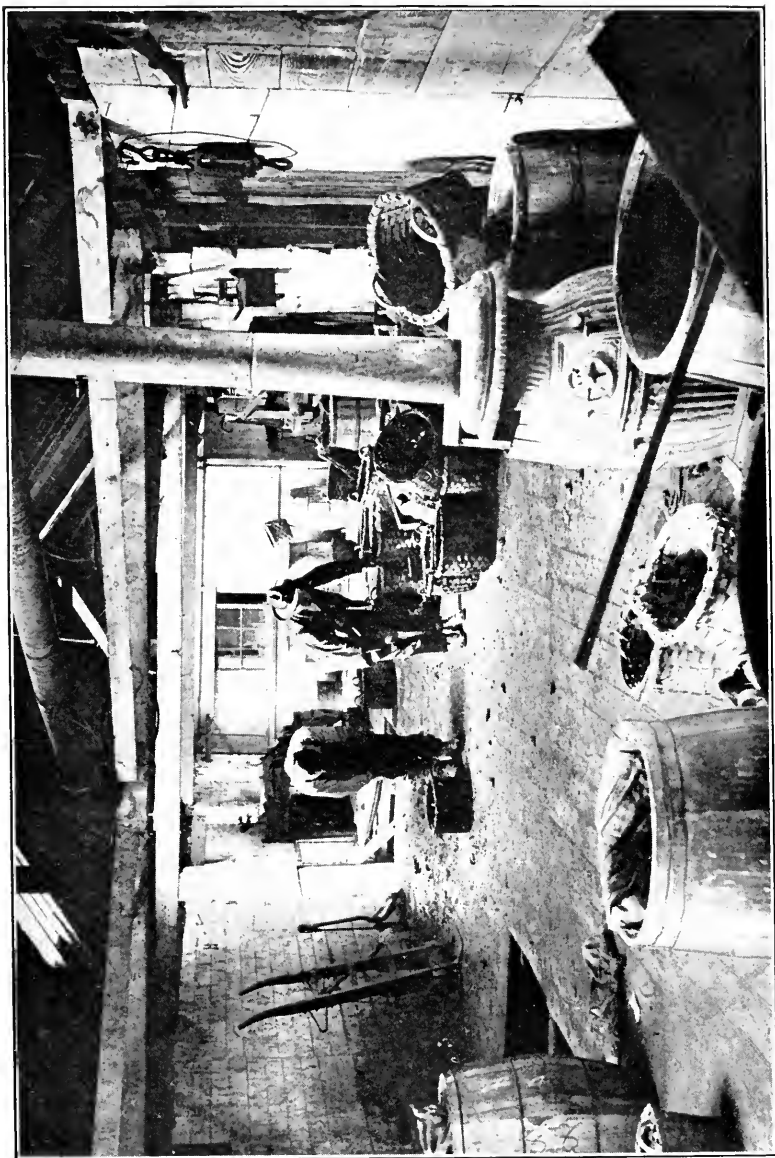
POULTRY YARD AND PRIVY ON BODINE CREEK.





INDIAN CREEK, SMALL WATERCLOSET IN THE DISTANCE.





INTERIOR OF AN OYSTER HOUSE ON INDIAN CREEK.

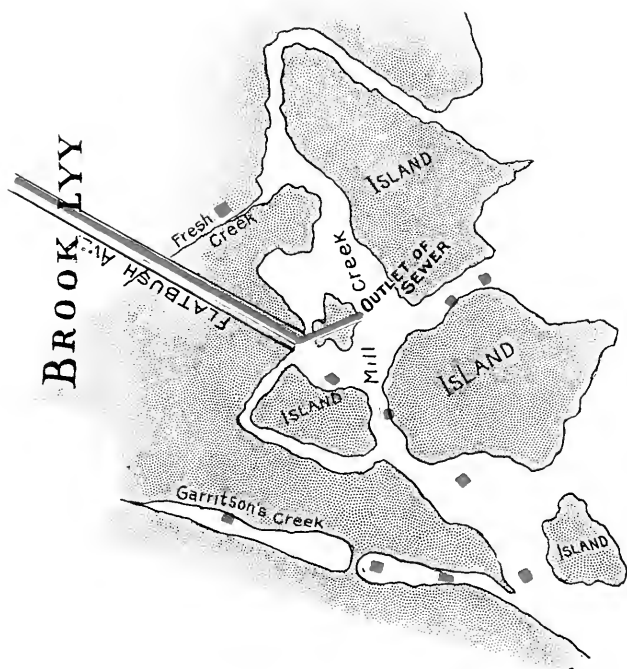
To the left will be seen openings leading to the cellar beneath, over the floor of which the water of the creek is allowed to flow. The oysters are placed on this cellar floor for freshening. Except the one small watercloset shown in the previous picture, there seems to be no very direct contamination of the water of the creek, but the Inspector reported that he found evidence that the oystermen themselves were not over particular in the disposal of their own excreta, and suggested that the convenient current of water flowing through the cellar might account for the absence of waterclosets in the vicinity.





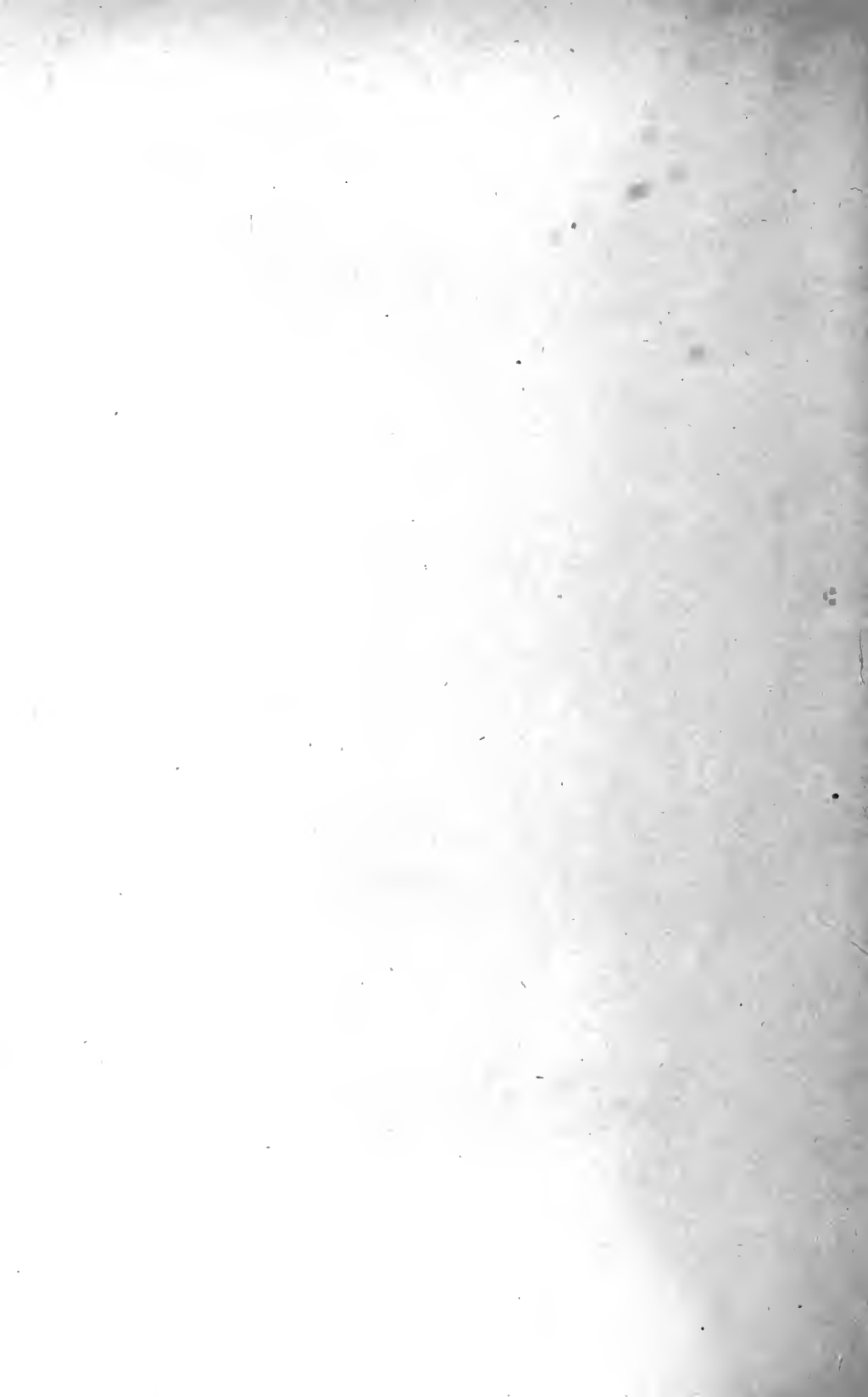
CANARSIE CEMETERY, DRAINAGE FROM WHICH PROBABLY POLLUTES THE WATERS OF
INDIAN CREEK.

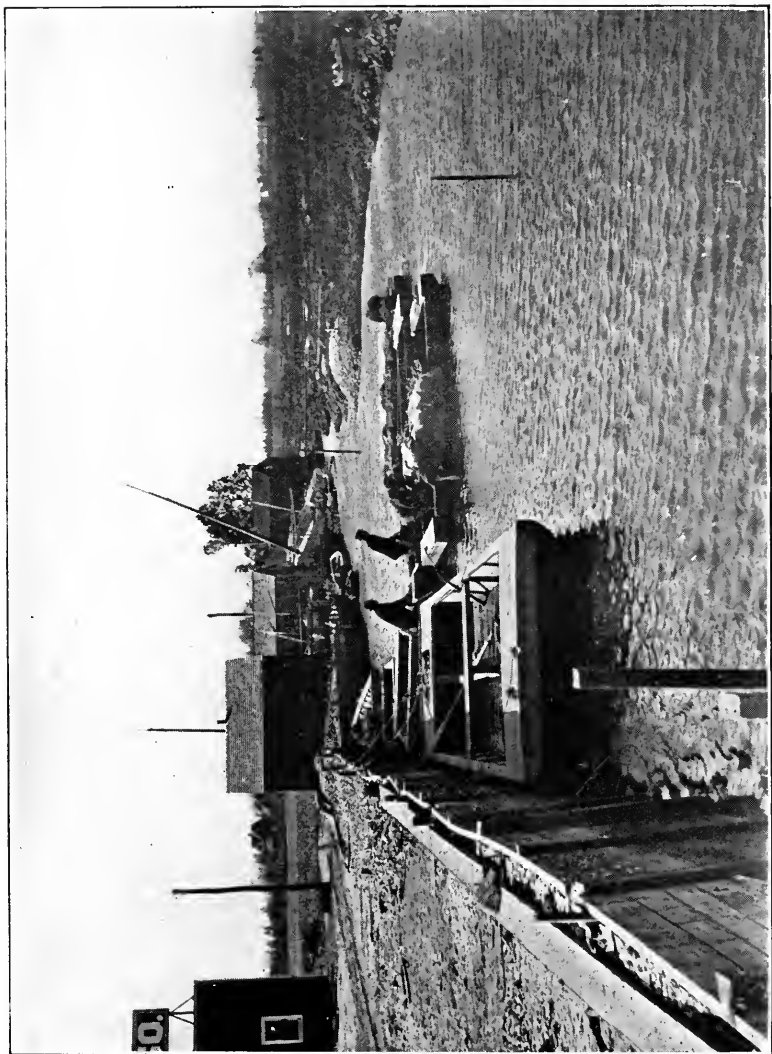




SKETCH SHOWING MILL CREEK AND ITS TRIBUTARIES.

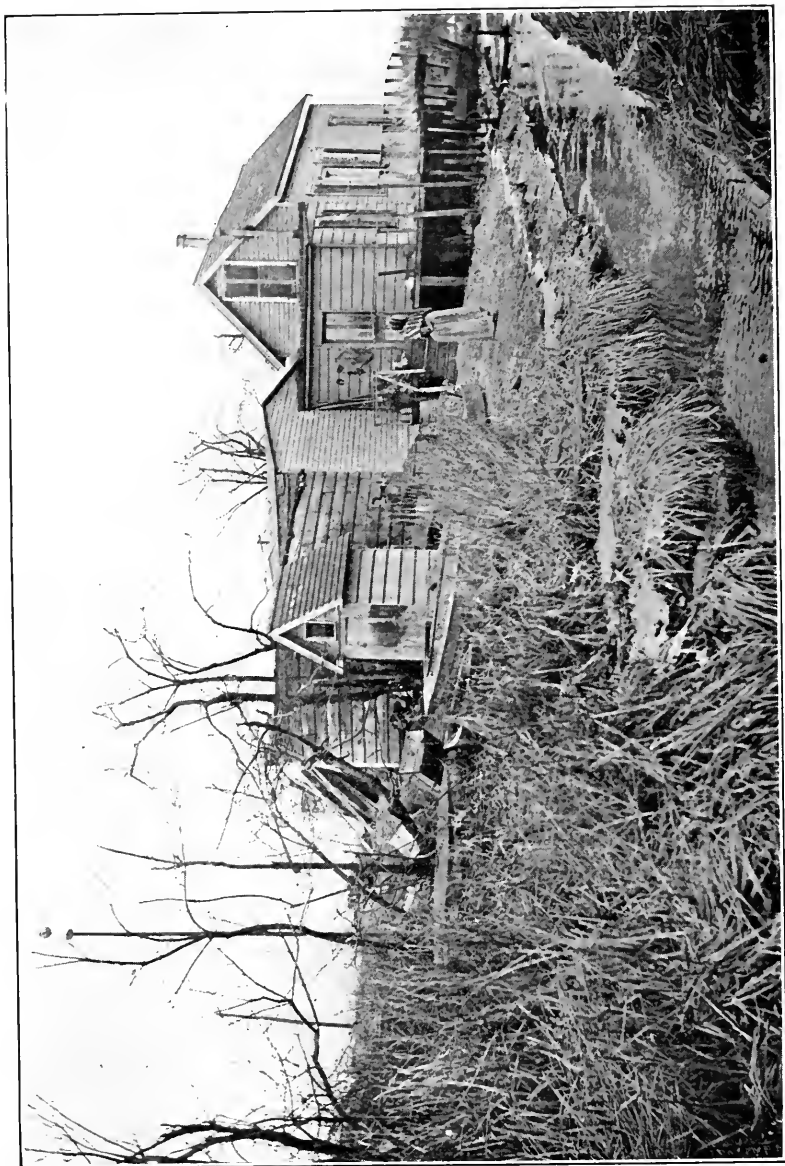
There are many oyster beds in this vicinity, which is near Flatlands, in the Borough of Brooklyn. The situation of the outlet of the Flatbush avenue sewer is shown, the sewage from which pollutes all the water in the neighborhood. The oysters are freshened in a little creek to the north of the sewer outlet, known as Spring Creek. Sources of pollution indicated in red. Oyster beds indicated in blue).





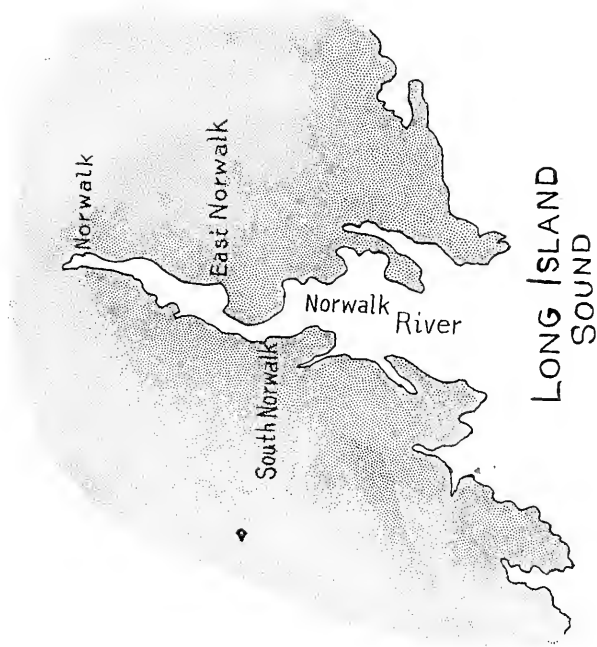
VIEW OF AN OYSTER ESTABLISHMENT ON SPRING CREEK.





FARM HOUSE ON UPPER PART OF SPRING CREEK, WITH PRIVY POLLUTING ITS WATERS.



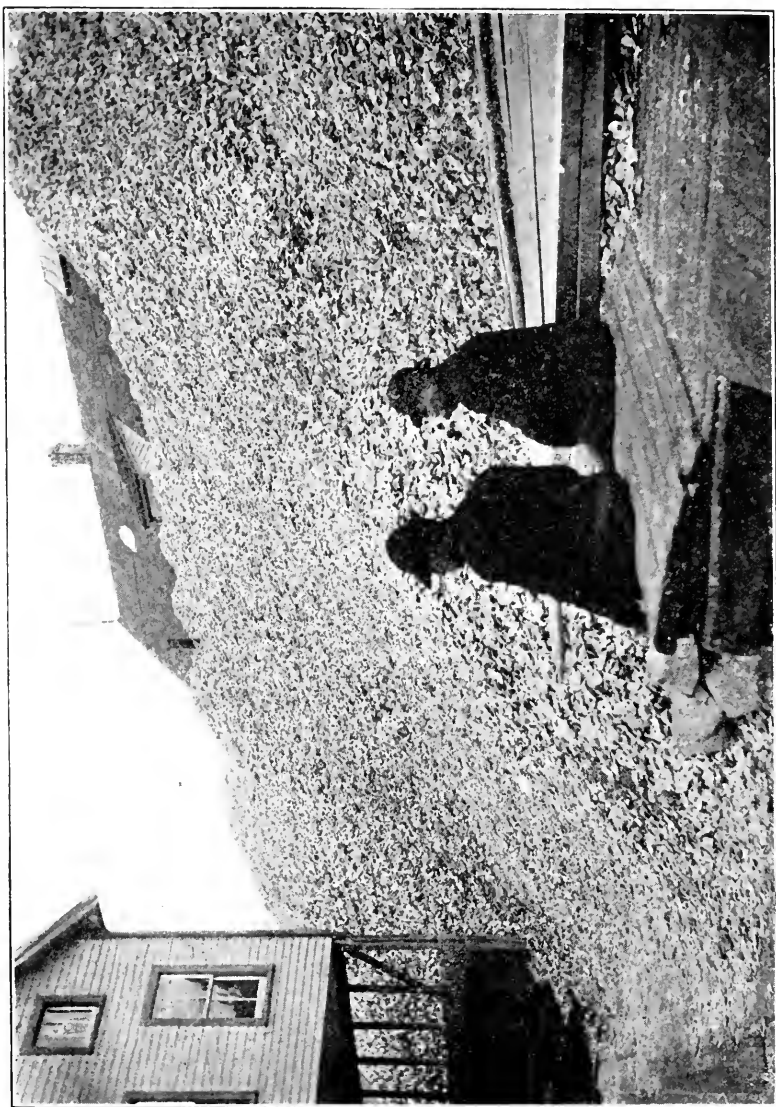


LONG ISLAND SOUND

SKETCH OF NORWALK, SOUTH NORWALK AND NORWALK RIVER.

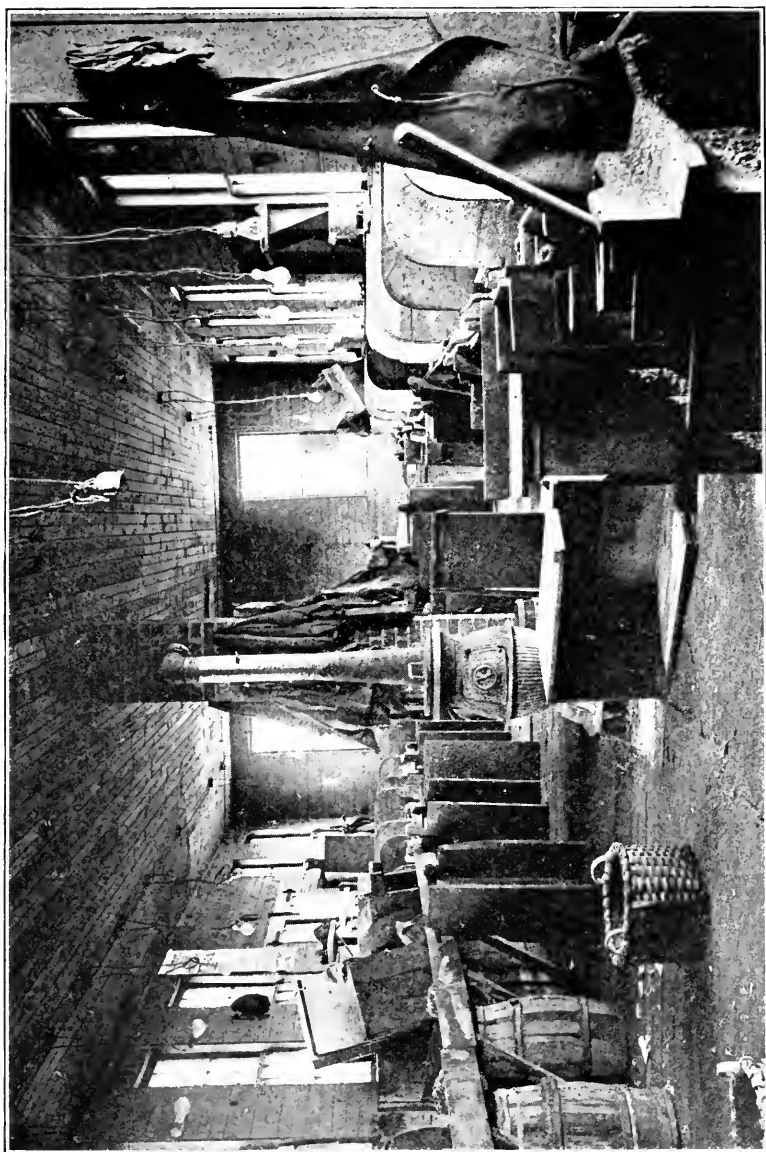
The oyster beds in this neighborhood are at the mouth of the river, in the adjacent parts of the Sound. The river receives the sewage of about 22,000 people and is used by the oystermen for freshening the oysters.



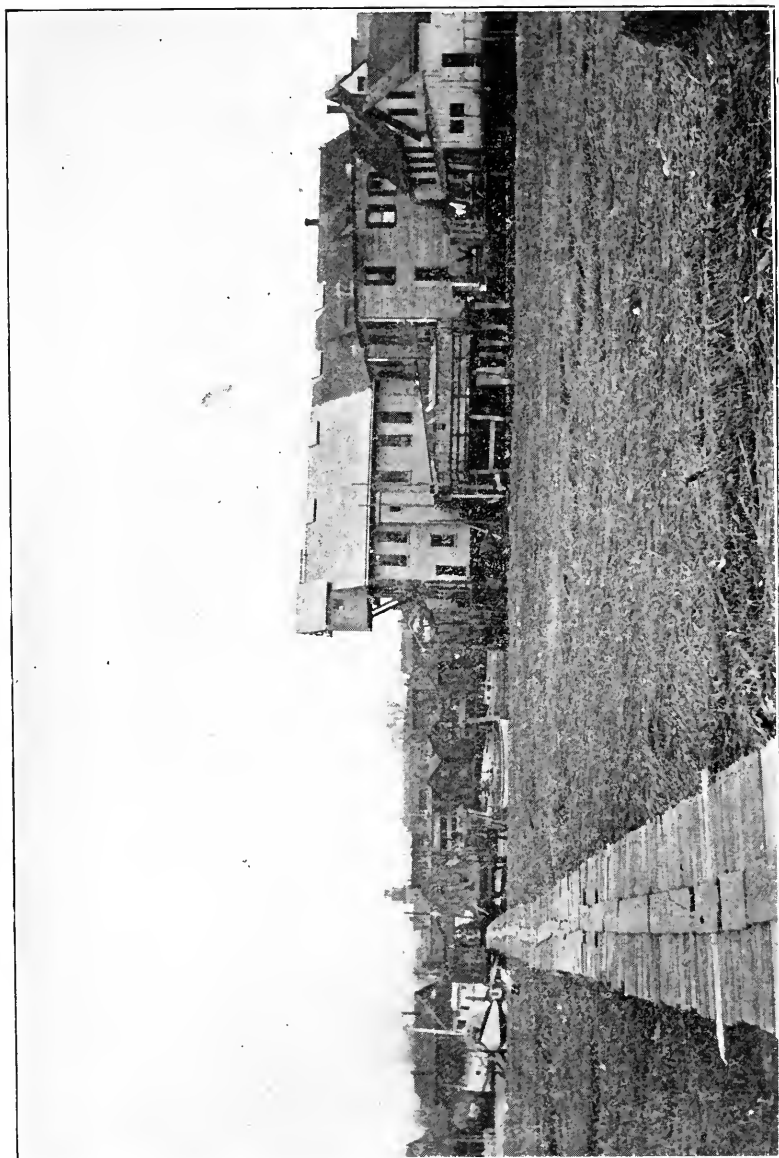


The business carried on is of great magnitude, as is shown by the great pile of oyster shells in this picture. Many of the oysters are opened and packed in tubs and barrels for transportation.

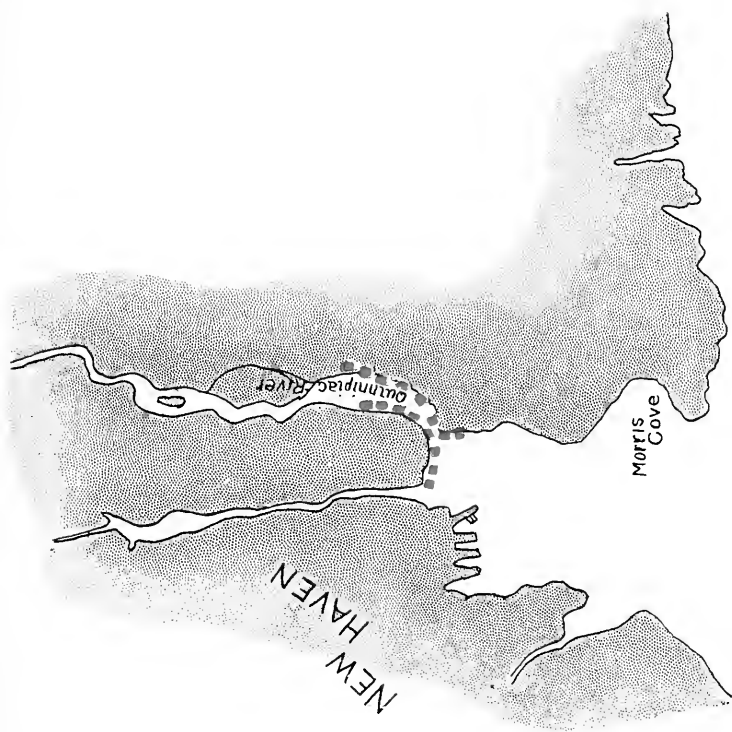




INTERIOR OF A SOUTH NORWALK OYSTER HOUSE.

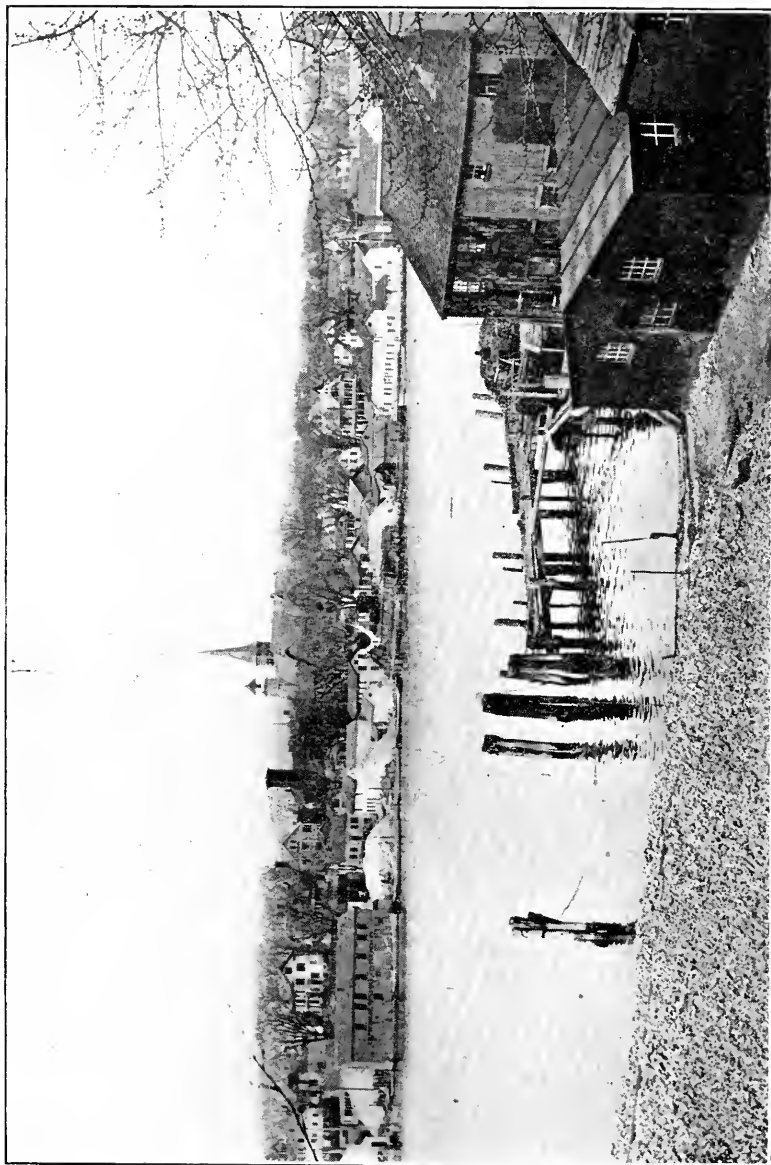


VIEW OF A PART OF SOUTH NORWALK, SHOWING WATERCLOSETS DISCHARGING
DIRECTLY INTO THE RIVER.



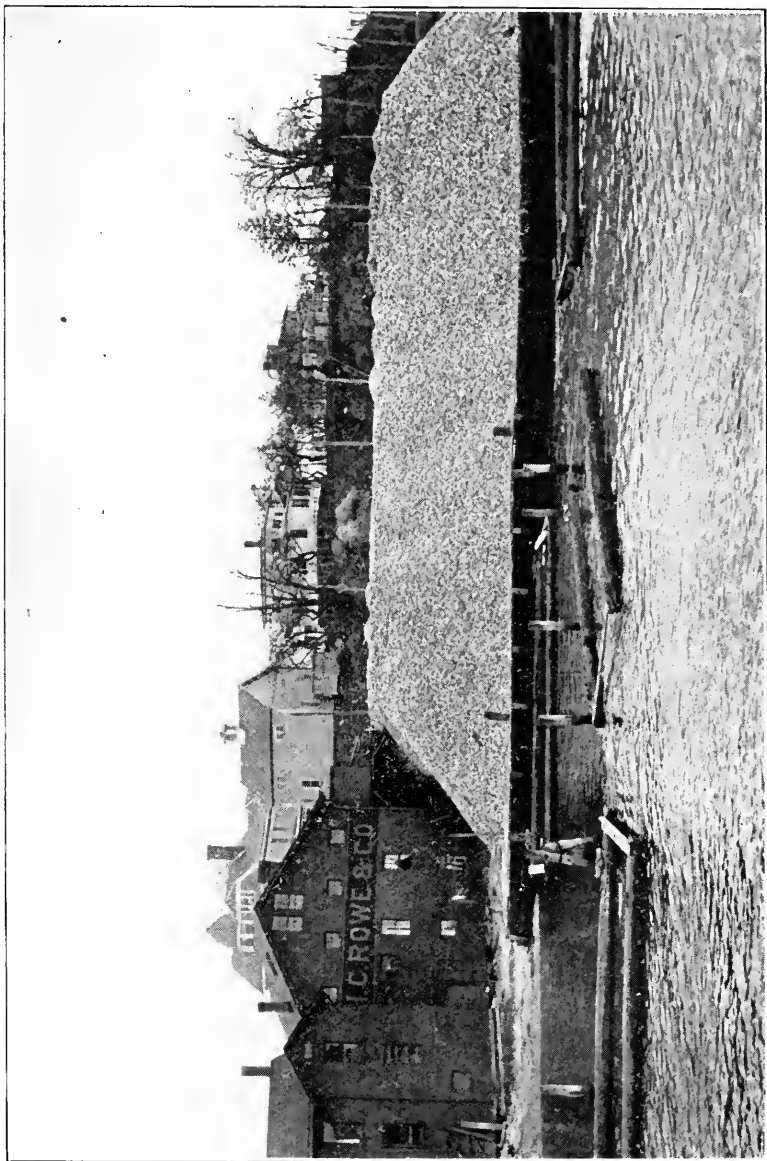
SKETCH SHOWING THE WATERS AT NEW HAVEN, CONNECTICUT.
The oysters are obtained from beds in the bay and sound, but are freshened and packed in the oyster houses along the banks of the Quinnipiac River.





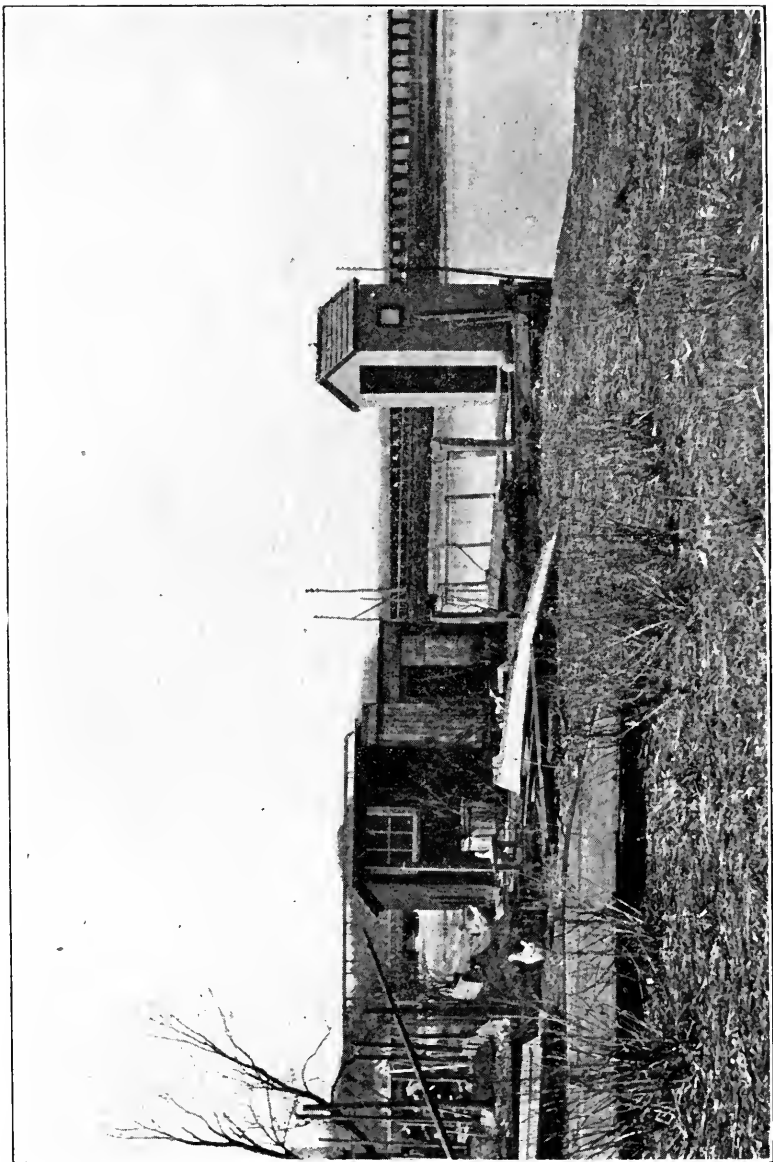
VIEW OF NEW HAVEN AND THE QUINNIPAC RIVER.
Oyster houses are shown along the banks.





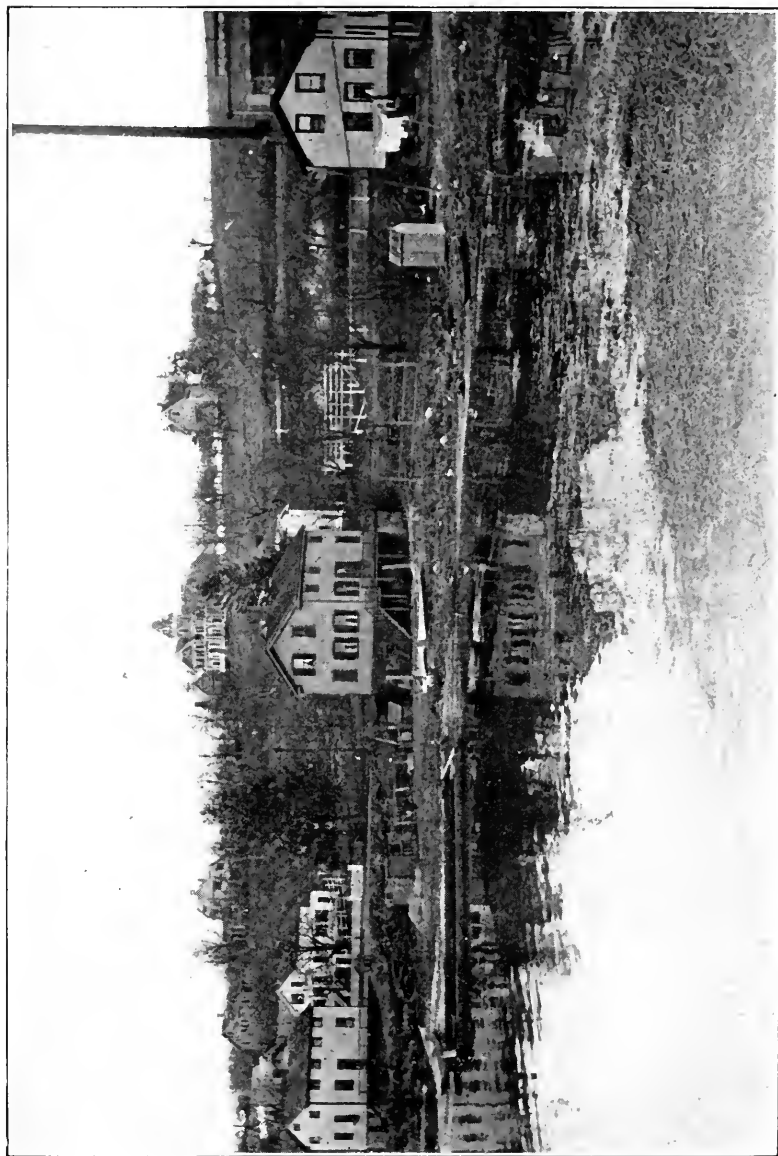
AN OYSTER ESTABLISHMENT, SHOWING FLOATS AND A PILE OF SHELLS, WHICH INDICATE THE MAGNITUDE OF THE BUSINESS.





VIEW ON THE QUINNIPIAC RIVER, COMMENT UNNECESSARY.



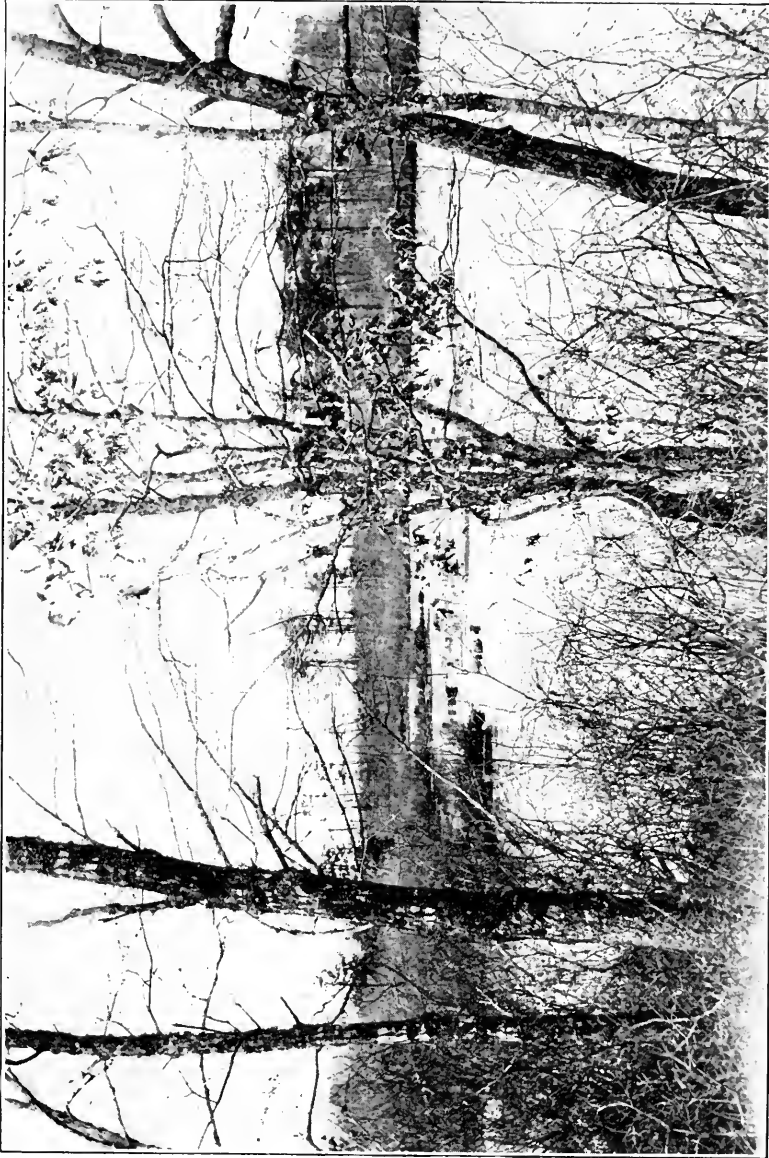


THE QUINNIPIAC, ABOVE NEW HAVEN, SHOWING POLLUTION BY COUNTRY TOWN PRIVY
AND OYSTER FLOAT IN JUNCTAPOSITION.

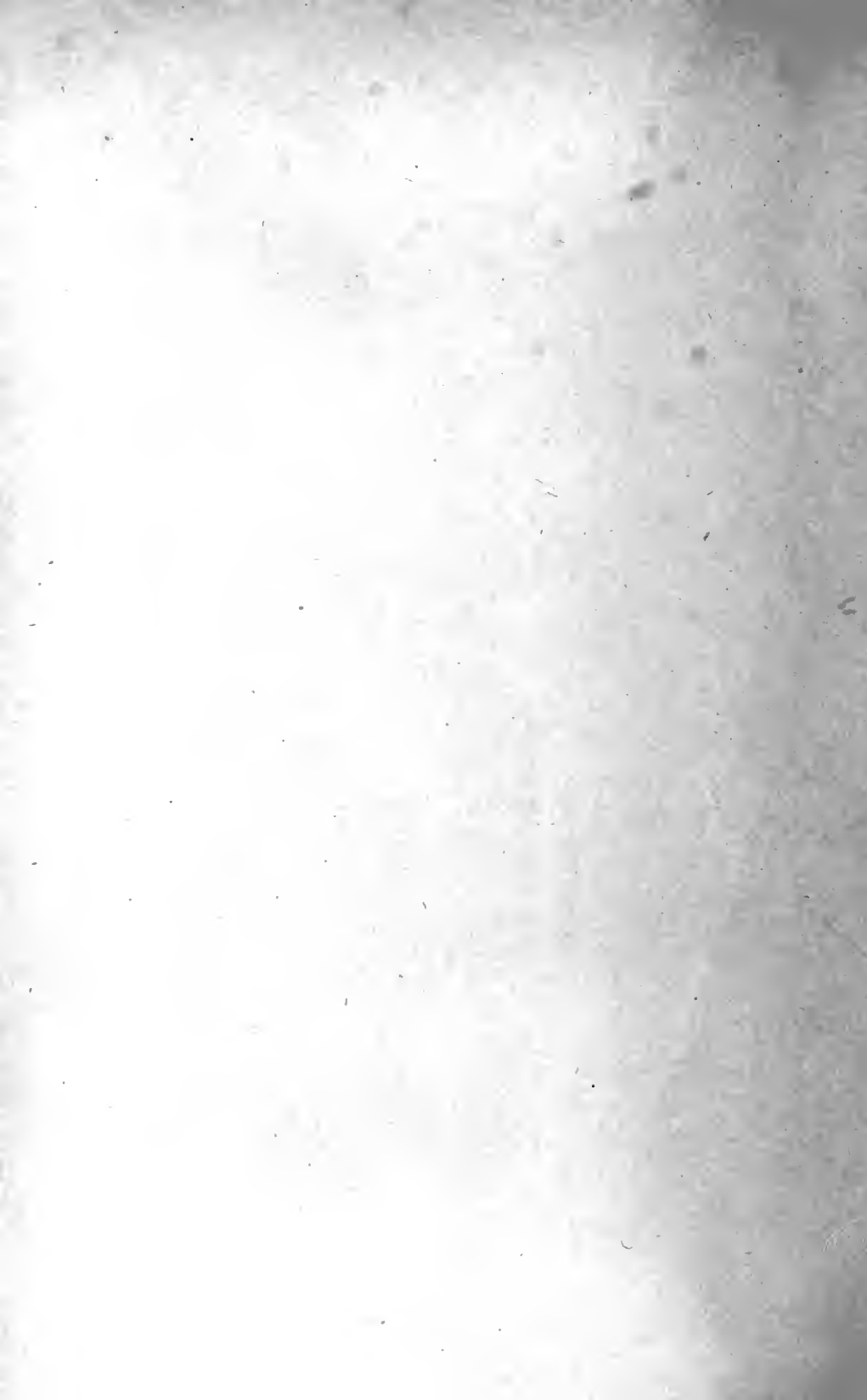
The tide arises alike on the food and the excreta.

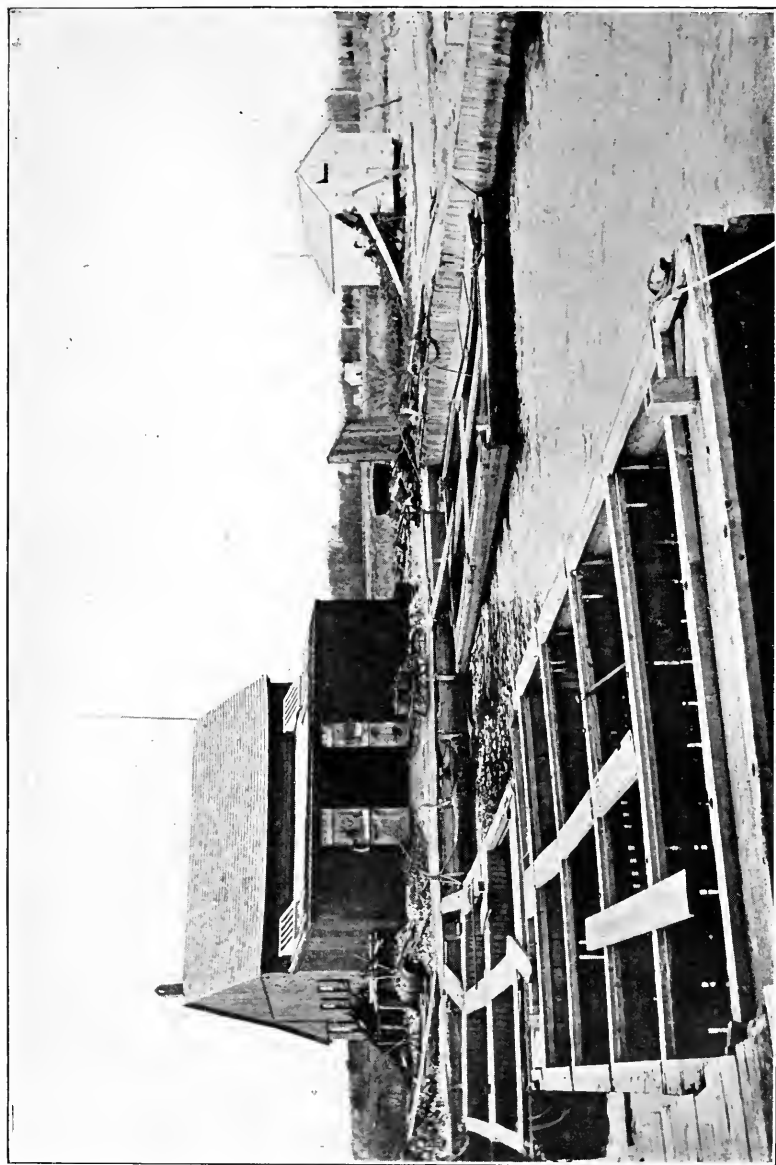
Oysters are shipped from New Haven to considerable distances, some even going as far as Chicago. Most of them are freshened in these polluted waters before shipping.

There are in the Blue Point Neighborhood of the Great South Bay some localities where the conditions are good for the fattening and freshening of oysters and where no pollutions exist. The following pictures show some of the better places of this class.



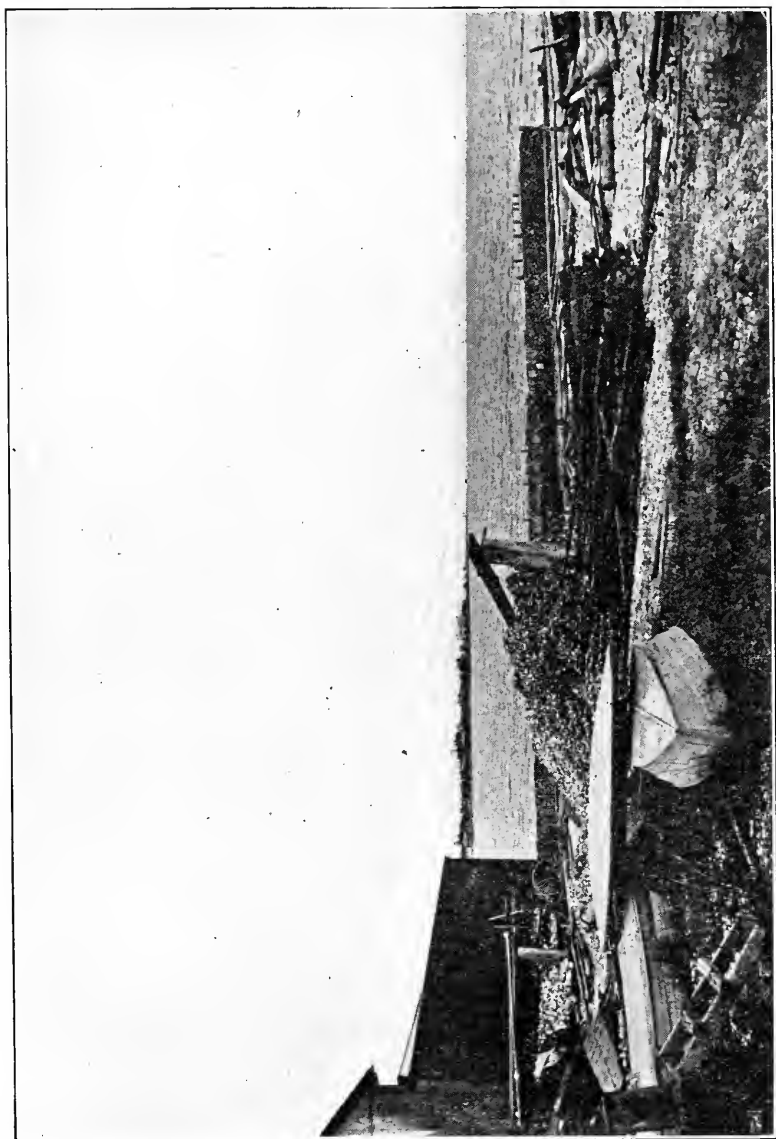
UNINHABITED NATURE OF A STREAM IN BLUE POINT NEIGHBORHOOD.





FLOAT ON BANK OF GREAT SOUTH BAY.





OYSTER HOUSE DIRECTLY ON SHORES OF GREAT SOUTH BAY.



This investigation, carried on by the Department of Health, demonstrates conclusively two things—

First—That the beds from which oysters are taken for consumption in this city often lie in grossly polluted waters.

Second—That the process of “freshening,” “fattening” or “drinking,” often performed as it is in small streams, badly contaminated with sewage, is a most dangerous practice and should be discontinued.

DEPARTMENT OF HEALTH, CITY OF NEW YORK, }
 SOUTHWEST COR. 55TH STREET AND SIXTH AVENUE, }
 BOROUGH OF MANHATTAN, }
 NEW YORK, December 31, 1904. }

Study II.

INVESTIGATIONS MADE BY THIS DEPARTMENT CONCERNING THE CONDITIONS UNDER WHICH MILK, SOLD IN THIS CITY, IS PRODUCED AND HANDLED AT THE FARMS AND CREAMERIES.

During the year 1904, work in this line has been done at dairies within the city limits, particularly in the Borough of Queens; in localities in New Jersey, from which milk is handled direct from the dairies to customers in the city; and in towns at some distance from the city, as in New York, New Jersey, and Pennsylvania, where creameries and shipping stations are located.

The results have, in the main, been very satisfactory, and some very notable improvements have been made at creameries and farms. These results have been obtained principally through the power which rests with the Department of Health, enabling it to exclude from sale in the city, milk produced under unsatisfactory conditions. There are now three inspectors in the Department who have been appointed State Inspectors by the State Department of Health, thus having authority to make inspections in any part of New York State. Their authority

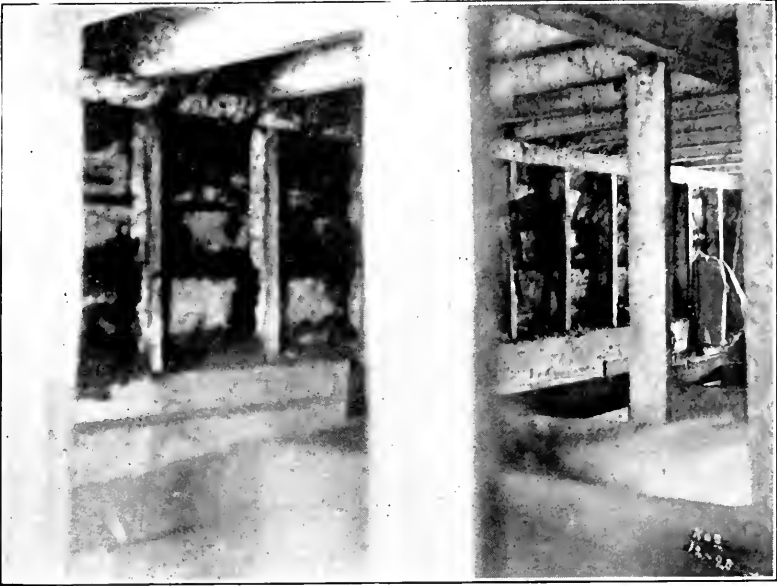
has, however, not been questioned, since the well-known fact that the city can exclude unsatisfactory milk is sufficient to induce creamery owners and farmers to allow inspections to be made.

In the Borough of Queens, where there are some 400 cow-stables where milk is produced for sale, inspections of the places have been made by an inspector in the borough, and orders have been issued against places which were not found to comply with sanitary requirements. As a result, a large number of places have been improved in condition, and some stables have been vacated and their owners have discontinued the production of milk.

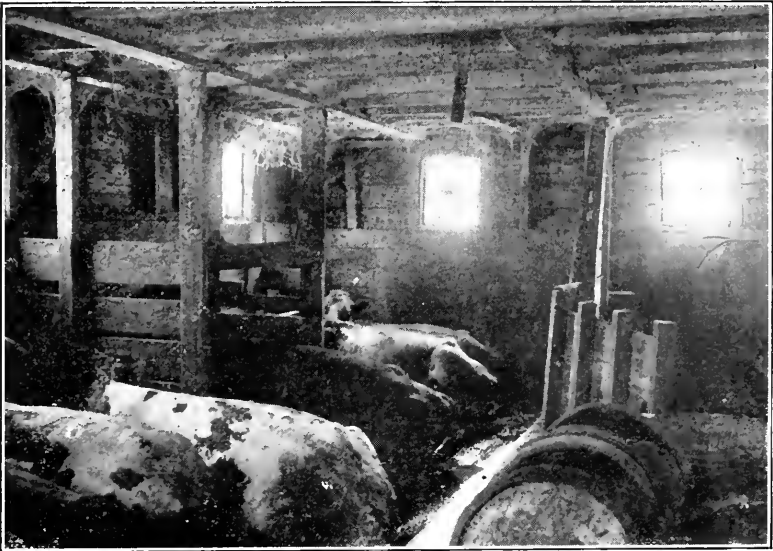
Some of the conditions, for which improvement has been demanded, are shown in the photographs.



MILK HOUSE CLOSE TO MANURE PILE.



INTERIOR OF STABLE, SHOWING MANURE ON WALLS.



INTERIOR OF STABLE, SHOWING COBWEBS OVERHEAD.

For various reasons these conditions are particularly difficult to deal with, the ignorance of many owners, and their unwillingness to make radical improvements, delaying the progress of the work. The fact that most stables are leased has made it difficult for occupants to obtain the desired improvements, while it has made it easy for them to move from place to place. Improvements are, however, being made.

Among the Secaucus, New Jersey, milkmen, the failure to make conditions satisfactory has resulted in the revocation of almost all permits, only one or two milkmen remaining. These few have put their places into sanitary condition.

At Worcester, New York, on the Delaware and Hudson Railroad, a creamery was found having the floor much broken and the ground under it saturated with filth. To this condition the Department of Health made objection, with the result that a re-inspection showed the old floor entirely removed, the offensive earth beneath removed, the place disinfected and fresh earth filled in. An excellent cement floor had been laid in place of the wooden one.

At Blooming Grove, on the Erie Railroad, a creamery was found in exceedingly bad condition. The floor was broken, and the drains obstructed, resulting in a collection of filthy and offensive material under the building. The water used was from a shallow spring in the centre of the building. Milk preservatives and cream color were found in use in the milk-room. The conditions generally were so bad that the permits of the company were revoked, and the creamery closed.



INTERIOR OF BLOOMING GROVE CREAMERY.

At a creamery at Hortonville, New York, it was found that all milk, before bottling was heated in a large vat to a temperature of 65 degrees, with the idea that a better cream line would be shown in the bottle when filled. The owners of the creamery were notified that such a practice must be stopped, since it gave the bacteria in the milk an excellent chance to multiply. The result was that the practice was discontinued.



HORTONVILLE CREAMERY.

At Cochection, Sullivan County, New York, it was found that a watercloset, used by the family of the manager of the creamery, and situated upon the upper floor of the creamery, was out of repair. It had become broken, and was leaking through the ceiling to the floor of the milk-room below, close to the mixing vats. The milk from this place was at once stopped and was not allowed to come to the city until thorough repairs had been effected at the creamery.



COCHECTON CREAMERY.

At Narrowsburg, Sullivan County, N. Y., it was found that the water used in washing utensils was taken from the river about ten feet below the place where the drainage from the creamery flowed into the river. The milk sent from this creamery was excluded from the city until a better water supply was secured.



SHOWING CREAMERY WATER SUPPLY, NARROWSBURG.

At another place two creameries were located close to a small ice pond into which flowed the drainage from both creameries as well as the drainage from several waterclosets in dwellings near the pond. The ice used in these creameries was cut from this pond. Notice was served upon the owners of the creameries that milk packed in this ice would be excluded from the city. Immediately the waterclosets were cut off and other drainage was provided.

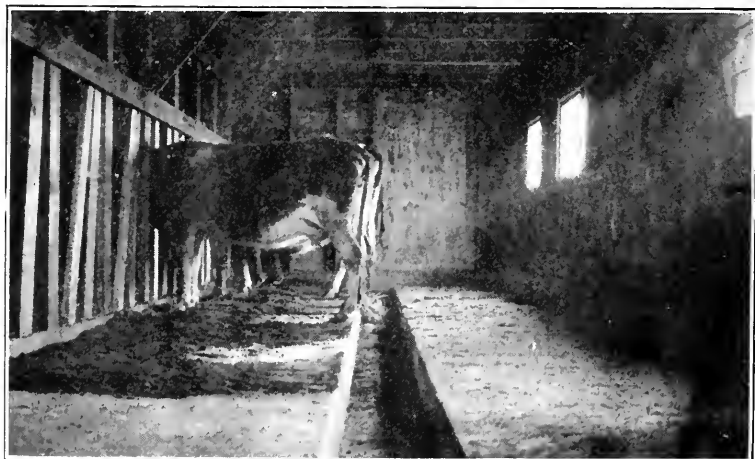
These instances show some of the worst conditions which have been found and remedied. Many other improvements, such as the repairing of floors, the cleaning of cooling-vats, the whitewashing of walls, etc., have been effected. In fact the energetic measures adopted by the Department have had the effect of causing creamery owners to take the initiative in making improvements, so that the inspectors have frequently found their work forestalled, and creameries once in bad condition are found, when inspected, to be free from any cause for complaint.

The greater part of the work in the country has been done during the last months of the year, and more attention has been given to creameries than to the farms, on account of the difficulty of reaching the farms during the cold season. A considerable number of farms have, however, been inspected and some have been found in such bad condition that the milk produced has been excluded.

The following photographs show some of the good dairies inspected.



DAIRY FROM WHICH THE DEPARTMENT OF HEALTH RECEIVES A PART OF ITS HOSPITAL MILK SUPPLY.



COW STABLE AT EAST WALDEN.



COW STABLE AT BRIARCLIFF MANOR.

It is intended that this exceedingly important work shall continue during the ensuing year, until all creameries and shipping stations shall be brought to a high standard of excellence. Certain rules for creameries, and certain other rules for dairymen will be adopted and their observance insisted upon by the Department.

The very large amount of intestinal diseases among children during the year seems to indicate some radical defect in the chief food of children, viz.: milk, and the investigations carried on during the latter part of the year have disclosed some of these defects. It is expected that complete and thorough inspection of all sources of supply will effect great improvements in the quality, and the safety, as a food, of the milk used in New York City, and it is hoped that as a result there may be a decrease in intestinal disorders among children.

THE DYSENTERY BACILLUS GROUP AND THE VARIETIES WHICH SHOULD BE INCLUDED IN IT.

WM. H. PARK, M. D.

(*Director of the Research Laboratory*)

AND

DRS. KATHARINE R. COLLINS AND MARY E. GOODWIN

(*Assistant Bacteriologists.*)

Shiga made known, in 1898, that in Japan there constantly occurred in dysenteric stools a bacillus not met with in normal stools or in ordinary diarrhea. This bacillus, though resembling in appearance and in growth on some media the colon bacillus, differed from it in many characteristics. It was not motile, produced no indol, and did not ferment with gas production any sugars. It usually agglutinated in high dilutions of the serum of patients convalescing from severe dysentery. Bacilli of apparently identical characteristics were later obtained from dysenteric stools in Europe, Asia, and America, so that when this investigation was undertaken most bacteriologists considered it established that this bacillus was the chief exciting factor in cases of acute epidemic dysentery not due to amebæ.

In 1900 Flexner and Strong, when in the Philippine Islands, isolated bacilli from dysenteric stools which they thought at that time to be identical with the Shiga cultures, but which were found later to differ in many characteristics. In the same year Kruse, in Germany, obtained from dysenteric cases in an asylum bacilli which appeared to him to be culturally like those isolated by Shiga, but to differ in their agglutinating characteristics. In 1902 Duval and Bassett, in Baltimore, found bacilli in the stools of a number of cases of summer diarrhea which later proved to be identical with the Flexner Manila culture. During the same summer Park and Dunham isolated a bacillus from a severe case of dysentery occurring during an epidemic at Seal Harbor, Mt. Desert, Maine, which they showed to differ¹ from the Shiga bacillus in that it produced indol in peptone solution and differed in agglutinating characteristics. They considered it at first to be identical with the

¹ N. Y. University Bulletin of the Med. Sciences, October, 1902, page 187.

Philippine culture given them by Flexner, but in January, 1903, it was shown by Park to be a distinct variety.

Martini and Lentz¹ published in December of 1902 the results of their work. They showed that the Shiga type of bacilli obtained from several separate epidemics in Europe agreed with the original Shiga culture in that it did not ferment the alcohol mannite. The cultures of this type agreed with each other in agglutinating characteristics. The bacilli from Flexner, Strong, Kruse, and others, which differed from the Shiga culture in their agglutinums, were all found to ferment mannite. Martini and Lentz, therefore, concluded that the Shiga bacillus was the true dysentery type and that the mannite fermenting variety or varieties might be mere saprophytes, or perhaps might be a factor in the less characteristic cases.

In January, 1903, Hiss² and Russell showed that a bacillus isolated by them from a dysenteric stool differed from Shiga's bacillus in the same characteristics as mentioned by Martini and Lentz.

At the beginning of the summer of 1903, therefore, it was recognized by many bacteriologists that there were in dysenteric stools at least two distinct types of bacilli: the true Shiga type and the type fermenting mannite and producing indol. It had also been established that the second type contained more than one variety.

The German observers considered the Shiga type as the only one which had established its causal relation to acute dysentery, while the American observers generally considered both types to have equal standing, and some³ of them considered these differences as not important and perhaps not permanent. This latter opinion seems to have been held by Shiga.⁴

We began this investigation last summer, with the object of carefully studying the bacilli isolated by us from the stools of persons suffering from acute dysentery, which occurred in a number of widely separated epidemics. We hoped thus to determine whether the bacilli exciting acute dysentery belonged to a few distinct types or were divided into a large number of varieties.

¹ Zeitschrift f. Hygiene u. Infektionskrankh., 1902, xli, 540 and 559.

² Medical News, 1903, lxxxii, 289.

³ University of Pennsylvania Medical Bul., July-August, 1903.

⁴ Zeitschrift f. Hygiene u. Infektionskrankh., 1902, xli, 356.

ORIGINAL INVESTIGATIONS.

The laboratory cultures studied came from the following sources: The Japan epidemic, 1898 (Shiga), the Philippine cases, 1900 (Flexner and Strong), the New Haven epidemic, 1901 (Duval), the Baltimore "summer diarrhea" cases, 1902 (Duval), the Seal Harbor epidemic, 1902 (Park), the Tuckahoe and Mt. Vernon epidemic, 1902 (Carey), New York City cases, 1902 (Wollstein). The new cultures isolated by us came from the epidemics in Mt. Vernon, Orange, Riker's Island and Coney Island (1903), and from the sporadic cases of summer diarrhea and irregular types of dysentery in New York City (1903).

We will first consider the prevalence of the Shiga type of bacillus in the cases studied.

In the most extensive epidemic that has recently occurred in the region of New York City there were in all some five hundred cases of acute typical dysentery. Whole families were attacked with the disease.

The majority of the cases were of moderate severity, the dysenteric discharges lasting from one to two weeks. There were a number of light cases, but all had dysenteric stools containing mucus and blood. The mortality was about six per cent. Judging from the cases investigated by us, over one-half of those attacked seem to have been infected by the Shiga type, and these were, as a rule, the most severe cases. Most of the cases in two severe, though localized, epidemics in a Pennsylvania town and at Sheepshead Bay were also due to this type. The mortality was higher in these epidemics. As there is no question about the Shiga type being a factor in characteristic dysentery, no detailed clinical notes are given from the many cases from which cultures were isolated. The facts published abroad also indicate that this variety has been found in the chief epidemics in Europe and Asia. The bacilli isolated in the severe epidemic of dysentery reported by Vedder and Duval (at New Haven, Conn.) were chiefly of this type. We have not yet chanced to isolate bacilli which had all the characteristics of the Shiga variety from any diarrhea cases in which no dysenteric symptoms appeared.

We turn now to the mannite fermenting varieties, whose relationship to dysentery has been doubted by many.

The cultures isolated by us from over forty cases were found to fall largely into two distinct types, one of which differs from the Shiga bacillus more radically than the other.

The variety nearer to the Shiga bacillus has the characteristics of the culture, already mentioned, which was isolated by us at Seal Harbor, Maine, in August, 1902.

This bacillus differs from the Shiga bacillus in its agglutinating characteristics and in that it produces considerable indol in peptone solution and ferments mannite with the production of acids. It differs from the Flexner Philippine type in its agglutinating characteristics and in that it does not ferment saccharose or chemically pure maltose in peptone solution.

Besides the epidemic at Seal Harbor, numerous cases of moderately severe or slight dysentery due to this type were met with in the extensive epidemic which has been already alluded to in the towns north of New York City. The few characteristics, as well as the more numerous less marked, cases of dysentery in New York City during the past summer were, in the majority of instances, infected with this type. In many stools no blood was noticed.

Histories of three cases of dysentery, typical of those infected with this type, will suffice to illustrate, and are as follows:

Case 1. A woman, age forty-three, eight fluid passages containing mucus and large amounts of blood daily. Some abdominal pain and tenesmus. On sixth day she was practically well, the stools being free of mucus and blood.

Case 2. A man, age seventy-two, sick twenty-four hours. Temperature 103, pulse 105, considerable prostration and abdominal pain. Sixteen fluid bloody stools in first twenty-four hours. At end of week he was sitting up and feeling well.

Case 3. A child, age three, stools every two hours were thin and watery and contained mucus and blood. Vomiting was frequent, and tenesmus considerable.

In these three cases about 10 per cent. of the bacilli in the cultures from the stools were of the Seal Harbor type, and no other types of

dysentery bacilli were found. Numerous other cases had similar mild or moderate symptoms. A mild case in a young child was of considerable interest. From straining there was slight prolapse of the mucous membrane. This was deeply injected and covered with mucus. A little of this mucus was taken and cultures made. Almost a pure culture of the Seal Harbor type was obtained, there being practically no other bacilli present. It is an interesting fact that, although in the same towns both types of bacilli were causing infection, we never found the Seal Harbor type associated with the Shiga type in any case. It seems as if the variety first causing infection usually greatly predominates in numbers over a second, if it should be added.

The third type of dysentery bacilli (Flexner Philippine type), as already stated, not only produces indol and ferments mannite, it also rapidly ferments maltose, with the production of acid in peptone solution, and attacks saccharose under favorable conditions.

The Philippine culture of Flexner, the Baltimore culture of Duval, and New York City cultures of Wollstein belong to this group. During the past year epidemics of dysentery at Riker's Island and Orange have been investigated by us, in which this type of dysentery bacillus was the only one met with in the stools. Some isolated, mild, and irregular cases have also been met with in New York City. A few histories will demonstrate that epidemics of acute typical dysentery may be caused by this type of bacillus. A number of rather severe cases of dysentery developed in Orange, N. J., during the past summer. Cultures from two cases were made, and this Philippine type alone obtained. The following is a typical case. Eighteen out of thirty colonies, selected from the plates, when tested proved to be dysentery bacilli.

Dorothy D., two and one-fourth years. Seen first July 29. The day before the child had eaten green apples. Previous to this the child had had an attack of vomiting and diarrhea, the sickness lasting two weeks, the diarrhea had subsided only two days before present illness. No blood was seen during this first attack. When first seen, the child had a temperature of 104.6 with vomiting and diarrhea. After a calomel purge the patient was better; the following day, however, the diarrhea started up again and the temperature rose. The stools were

numerous, small, containing mucus and blood, preceded by pain and accompanied by tenesmus. Many of the stools consisted of nothing but blood and mucus. Sixteen movements was the greatest number recorded in a day. On August 2 ten cubic centimetres of dysenteric serum was injected. There seemed to be some improvement in the character of the stools following the injection. On August 4 and 6 the injections were repeated, being followed each time, apparently, by some improvement in the child's condition. The blood disappeared in eight or nine days, and the child had then five movements daily, consisting largely of mucus.

At Riker's Island a number of men were filling in new land. Dysentery broke out and spread to a number of the men as well as to the physician in charge. Those infected had usually a short, sharp attack with a quick recovery. Very large amounts of blood were passed by some of the sick. In some a large proportion of the bacteria isolated were bacilli of the Philippine type. No other type of dysentery bacilli was found in any of the cases in this epidemic.

The above statements seem to us to be sufficient to establish that there are at least three distinct types of bacilli which are factors in epidemic dysentery. One we might divide them into two groups, the true Shiga group and the group of mannite fermenters. The latter group being divided into two types, one fermenting mannite alone in peptone solution, the other maltose and saccharose also. When the agglutinating characteristics of these bacilli and their susceptibility to immune sera are studied carefully, we find that each of the three types differs from the others. Here again the mannite and the maltose types, through their stimulating in animals abundant common agglutinins and immune bodies, seem more closely allied to each other than to the Shiga type.

This is seen in the following tables, in which bacilli from a number of cases obtained from different sources are tested in sera from animals which have each received a single type of dysentery bacillus.

The technic used in making the agglutination tests was as follows: Bouillon was inoculated with the bacilli from eighteen-hour old agar cultures and allowed to stand for two hours at 37 degrees C. To prepare the hanging drops the bouillon culture was added to an equal

quantity of the diluted serum. The hanging drops were kept at a temperature of about 22 degrees to 25 degrees C., and examined at the end of three hours under the microscope. Control tests were made in tubes and yielded similar results, except that the incomplete reactions could not be so well noted. On different days the same serum was found to give slightly different results, higher dilutions acting on some days than on others. For this reason each serum was tested on all the bacilli at the same time.

TABLE I.

Agglutination of Bacilli Belonging to the Three Types in the Serum of a Young Goat Injected with the Bacillus Isolated by Shiga, in Japan.

		Dilutions of Serum.									
Source.	Isolated by	1: 10	1: 20	1: 50	1: 100	1: 200	1: 500	1: 1000	1: 2000	1: 3000	1: 5000
Type I. Shiga.											
1. Original, Japan—Shiga.....		++	++	++	++	++	++	++	++	+	+
2. New Haven—Duval.....		++	++	++	++	++	++	++	++	+	+
3. Tuckahoe—Carey.....		+ |	+ |	++	++	++	++	++	+ |	+ |	±
4. Coney Island—Collins.....		++	++	++	++	++	++	++	++	+	+
5. Mt. Vernon, Case I.—Collins...		++	++	++	++	++	++	++	+ |	+	+
6. Mt. Vernon, Case II.—Collins...		+ |	++	++	++	++	++	++	++	+	±
7. Mt. Vernon, Case III.—Collins..		++	++	++	++	++	++	++	+	+	±
Type II.											
8. Original, Mt. Desert—Park.....		++	+ |	+ |	|						
9. New York City—Goodwin.....		++	+ |	+ |	|						
10. Hospital, N. Y.—Collins.....		+ |	+ |	+ |	|						
11. Foundling Hospital—Hiss.....		++	+ |	+ |	|						
12. Mt. Vernon, Case I.—Collins....		++	+ |	|							
13. Mt. Vernon, Case II.—Collins...		++	++	+ |							
Type III.											
14. Original, Manila—Flexner.....		++	+	+	+	±					
15. Baltimore—Duval.....		++	+ |	+ |	+	±					
16. New York City—Wollstein.....		++	++	+	±	|					
17. Orange—Collins.....		++	+	+	±						
18. Riker's Island—Goodwin.....		++	++	++	+	|					

The serum of this goat before injection did not agglutinate any of the above bacilli in a 1:10 dilution.

++ = complete reaction. + = good reaction. | = slight reaction.
 + | = very good reaction. ± = fair reaction. — = no reaction.

TABLE II.

Showing Agglutination of Members of Three Types in the Serum of Animals Injected with Bacilli of Type II.

		Goat Injected with No. 6.						Rabbit Injected with No. 8.					
Source.	Isolated by	1:20	1:50	1:100	1:500	1:1000	1:5000	1:20	1:50	1:100	1:500	1:800	1:1000
Type I. Shiga.													
1.	Japan—Shiga.....	+	—	—	—	—	—	|	—	—	—	—	—
2.	New Haven—Duval.....	+	—	—	—	—	—	|	—	—	—	—	—
3.	Tuckahoe—Carey.....	+	—	—	—	—	—	|	—	—	—	—	—
4.	Mt. Vernon—Collins.....	+	—	—	—	—	—	|	—	—	—	—	—
5.	Brooklyn—Collins .....	+	—	—	—	—	—	|	—	—	—	—	—
Type II.													
6.	Mt. Desert--Park.....	++	++	++	++	++	—	++	++	++	+	|	—
7.	New York—Wollstein.....	++	++	++	++	++	—	++	++	++	+	|	—
8.	Mt. Vernon—Collins.....	++	++	++	++	++	—	++	++	++	+	+	—
9.	New York—Hiss.....	++	++	++	++	++	—	++	++	++	+	—	—
Type III.													
10.	Manila—Flexner.....	++	++	+	—	—	—	++	++	++	—	—	—
11.	Baltimore—Duval.....	++	++	+	—	—	—	++	++	++	—	—	—
12.	New York—Wollstein	++	++	+	—	—	—	++	++	++	—	—	—
13.	Orange—Collins	++	++	+	—	—	—	++	++	++	—	—	—
14.	Riker's—Goodwin.....	++	++	+	—	—	—	++	++	++	—	—	—

The serum of the above animals did not agglutinate any of the above bacilli in a 1: 20 dilution.

TABLE III.

Showing Agglutinating Differences Between Bacilli of Type II., Which Agree in Their Fermentation of Sugars.

Reactions of members of three types in serum of animals injected with Type II., B. Rabbit injected with Brooklyn, Collins.

	1:10	1:20	1:50	1:100	1:500	1:1,000
Type I.						
5 Shiga type cultures	—	—	—	—	—	—
Type II.						
Mt. Desert—Park	++	++	+	—	—	—
New York—Wollstein	++	++	+	—	—	—
Mt. Vernon—Collins	++	++	+	—	—	—
New York—Hiss	++	++	+	—	—	—
Type II., Class B.						
Brooklyn—Collins	++	++	++	++	+	—
Type III.						
Manila.....	++	++	—	—	—	—
Baltimore.....	++	++	—	—	—	—
New York	++	++	—	—	—	—
Orange	++	++	—	—	—	—
Riker's.....	++	++	—	—	—	—

This is an example of an occurrence that we have met with a number of times in testing the sera of rabbits inoculated with bacilli from isolated cases which showed, when tested in the sera specific for the three main types, a slight difference from any of them. This was found to depend upon the production of truly specific agglutinins along with group agglutinins.

TABLE IV.

Showing Agglutinations of Members of Three Types in the Serum of Animals Injected with Bacilli of Type III.

	Rabbit Injected with Baltimore, Duval.										Rabbit Injected with Riker's Island.				
	10	20	50	100	500	1,000	5,000	7,500	10,000	10	20	50	100	200	500
Type I.															
1. Japan—Shiga.....	++	++	+	+	—	—	—	—	—	—	—	—	—	—	—
2. Tuckahoe—Carey.....	++	++	+	—	—	—	—	—	—	—	—	—	—	—	—
3. New Haven—Duval.....	++	+	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Mt. Vernon—Collins.....	++	++	+	—	—	—	—	—	—	—	—	—	—	—	—
5. Brooklyn—Collins.....	++	+	—	—	—	—	—	—	—	—	—	—	—	—	—
Type II.															
6. Mt. Desert—Park.....	++	++	++	+	—	—	—	—	—	++	—	—	—	—	—
7. New York—Collins.....	++	++	++	+	—	—	—	—	—	++	—	—	—	—	—
8. Mt. Vernon—Collins.....	++	++	++	+	—	—	—	—	—	++	—	—	—	—	—
9. New York—Hiss.....	++	++	+	—	—	—	—	—	—	++	—	—	—	—	—
Type III.															
10. Manila—Flexner.....	++	++	++	++	++	++	++	+	+	++	++	++	++	+	—
11. Baltimore—Duval.....	++	++	++	++	++	++	++	+	+	++	++	++	++	+	—
12. New York—Wollstein.....	++	++	++	++	++	++	++	+	+	++	++	++	++	+	—
13. Orange—Collins.....	++	++	++	++	++	++	++	+	+	++	++	++	++	+	—
14. Riker's Island—Goodwin.....	++	++	++	++	++	++	++	+	+	++	++	++	++	+	—

The serum of the Baltimore rabbit agglutinated the bacilli of Type III. in 1:20 dilution, but none of the others even in 1:10. This is one of the few animals in which agglutinins for Type I. developed through the injections of bacilli of the other types.

TABLE V.

Showing how Type III. is Unable to Absorb the Agglutinins Produced Through Injections of Type II. Serum from Rabbit Inoculated with Mt. Vernon Culture, Type II.

	Serum before Absorption.	Agglutinins Exhausted with							
		Duval Baltimore.					Mt. Vernon cc. ₂		
		1:20	1:50	1:100	1:200	1:400	1:20	1:50	1:100
Type I.									
Shiga, 5 cultures.....	1:10	—	—	—	—	—	—	—	—
Type II.									
Mt. Desert.....	1:600	++	++	++	+	|	—	—	—
New York.....	1:600	++	++	++	+	—	—	—	—
Mt. Vernon.....	1:600	++	++	++	+	—	—	—	—
New York.....	1:600	++	++	++	+	—	—	—	—
Type III.									
Manila.....	1:100	—	—	—	—	—	++	|	—
Baltimore.....	1:100	—	—	—	—	—	++	—	—
New York.....	1:100	—	—	—	—	—	++	—	—
Orange.....	1:100	—	—	—	—	—	+	—	—
Riker's.....	1:100	—	—	—	—	—	+	—	—

Before injections this rabbit's serum agglutinated Types II. and III. in 1:20 dilutions.

The considerable amount of common agglutinins affecting Type II. and Type III. are seen to be absorbed by the bacilli of either type. The larger amount of specific agglutinin is left in the serum when any bacillus other than one of identical characteristics with the bacillus used in the immunization is employed.

TABLE VI.

Showing that Horse Injected with Shiga and Philippine Types Developed Specific Agglutinins for the Bacilli Belonging to these Two Types and Common Agglutinins for the Varieties Included under Type II.

Cultures.	Serum after Injections for Several Months.	Same Serum after Saturation with Cultures of						
		Shiga Type.	Type III.	Type II.	Staphylococcus.	Pyocyanus.	Typhoid.	Colon.
Type I.								
Shiga Original	+1,500	-10	+400	+700	+150	+1,000	+300	+300
New Haven.....	+1,500	-10	+400	+700	+150	+800	+250	+300
Mount Vernon	+1,500	-10	+400	+700	+150	+700	+250	+300
Tuckahoe	+1,500	-10	+400	+700	+150	+800	+250	+300
Brooklyn.....	+1,500	-10	+400	+700	+150	+800	+300	+300
Type II.								
Park Original.....	+600	-10	-10	-10	+600	+600	+30	+50
New York City.....	+600	-10	-10	-10	+600	+600	+30	+40
New York Hiss	+600	-10	-10	-10	+600	+600	+30	+40
Mount Vernon	+600	-10	-10	-10	+600	+800	+30	+40
New York City.....	+600	-10	-10	-10	+600	+600	+30	+50
Type II. (B)—Brooklyn.....	+600	+20	+10	+50	+200	+300	+100	+50
Type II. (C)	+300	-10	-10	+50	+100	+50	+10	+20
Type II. (D).....	+600	-20	-10	+50	+100	+100	+30	+60
Type III.								
Flexner Original	-1,200	+400	-10	+500	+800	+800	+300	+600
Baltimore	+1,200	+400	-10	+500	+800	+1,000	+300	+400
New York City.....	+1,200	+400	-10	+500	+800	+800	+400	+500
Orange	+1,200	+400	-10	+500	+800	+800	+300	+400
Riker's Island.....	+1,200	+400	-10	+500	+800	+1,000	+300	+600

The manipulation necessary in making dilutions and filtering, as well as the effect of standing, cause a certain amount of destruction of agglutinins. The marked reduction of agglutinins for the Shiga type after saturation with staphylococci is probably due to a destructive action.

TABLE VII.

Protective Action of Serum of Dysentery Horse's at an Early Period in the Process of Immunization.

	Fatal dose.	Shiga Horse.		Type III., Horse.	
		Protected.	Unprotected.	Protected.	Unprotected.
Shiga Type.....	2 loops	4 loops	6 loops	*	* 2 loops
Type III.....	4 "	.....	4 "	8 loops	12 "
Type II., Class A	½ "	.....	½ "	½ "	2 "
Type II., Class B.....	1 "	.....	1 "	2 "	
Type IV., normal case	½ "	.....	½ "	.....	½ "
Colon Bacillus Y.....	4 "	.....	4 "	4 loops	8 "

* This test was one with the serum of a goat immunized to Type III.

After a longer period of inoculations the serum of the horse immunized to the Shiga type had distinct protective value in preventing infection with the acid types. The reverse was also true, that the serum of animals receiving repeated injections of the acid types finally protected the Shiga type.

The serum of animals injected with acid Type III. acted nearly as powerfully on acid Type II. as on its own type. Animals injected with cultures obtained from normal cases, which varied only slightly in their cultural reactions, were not protected by the dysenteric serum. Most colon bacilli were also not acted upon by any dysenteric serum.

A member of the colon group obtained from several cases, which in its fermentative action upon sugars was identical with characteristic colon cultures, was found to produce through its injections in animals abundant agglutinin for Type III. Type III. also produced abundant agglutinin for the colon culture.

The same reciprocal relations were found to exist between them in immune bodies. This colon bacillus was found in several cases of atypical dysentery, especially of a chronic type.

SUMMARY AND CONCLUSIONS.

The great majority of the bacilli which have been isolated from cases of dysentery not due to amebæ, and which must be considered as being exciting factors in that disease, are included in three distinct varieties or types. This at least is true for the many cultures which we have isolated or obtained from others.

The type most frequently found in severe epidemics is that of the first culture isolated by Shiga. Bacilli identical in bio-chemical and agglutinating characteristics with this bacillus have been isolated from cases of dysentery in many parts of the world. None of the bacilli belonging to this type produce indol, except, perhaps, in a trace, or ferment mannite, maltose, or saccharose. Animals injected with this type produce specific agglutinins for this type in abundance and only very little that combines with the others.

The second type ferments mannite with the production of acid, but does not split maltose or saccharose in peptone solution or agar.

It produces indol. Animals, after inoculation with it, develop immune bodies and agglutinins specific for the type. They also develop in considerable proportion immune bodies and agglutinins which have affinity for the bacilli of Type III. and to a slight extent for Type I.

The third type is nearest to the colon group, since it not only produces indol and actively ferments mannite, but also acts energetically upon pure maltose and feebly upon saccharose.

Animals injected with this type develop specific immune bodies and agglutinins, and also abundant immune bodies and agglutinins which have an affinity for the bacilli of Type II. and for many bacilli of the colon group. For Type I. these substances are but slightly developed.

These two mannite fermenting types are widely scattered over the world, and certainly cause characteristic cases and epidemics of dysentery, although on the average the disease caused by them is milder than when due to the Shiga bacillus. One or the other of these two types also appear at times in small numbers in mixed infections where dysenteric symptoms are almost or entirely absent.

Although the majority of bacilli obtained ~~have~~ had the characteristics of one of the above types, still bacilli have been found ~~in~~ isolated cases, which, although agreeing in bio-chemical characteristics with one of the three, nevertheless differed in producing different specific agglutinins. A few bacilli have also been met with which differ slightly in bio-chemical as well as agglutinating characteristics.

It seems, therefore, that these three types should be considered as the characteristic representatives of three groups.

In consideration of all the above facts, it seems to us incorrect to name the mannite fermenting groups as pseudo dysentery bacilli. If we call them all dysentery bacilli, we must classify them as dysentery bacilli of the Shiga group, of the group fermenting mannite but not maltose, and of the one fermenting both mannite and maltose.

This manner of differentiating the groups would be very confusing, and it seems to us more convenient, and better, to restrict the name dysentery to bacilli having the characteristics of the bacillus isolated by Shiga, and give the name para-dysentery to the other two groups which approach more closely the colon group in that they produce indol and have a greater range of activity in fermenting carbo-hydrates.

An additional reason for the use of the prefix para, beyond that of convenience, is the less average severity of the disease due to these types and the probability that there will be found, in occasional sporadic cases and epidemics of dysentery, bacilli which have a causal relation to dysentery and exhibit more pronounced characteristics of the colon group than any of the varieties so far isolated.

DYSENTERY-LIKE BACILLI IN STOOLS OF APPARENTLY HEALTHY CHILDREN.

MARY E. GOODWIN, M. D., ASSISTANT BACTERIOLOGIST.

During the past year special attention has been given to the search for the dysentery bacillus in normal stools. Dr. Wollstein¹ gives a very complete list of the literature on the subject in her work for the Rockefeller Institute for 1903-1904. She draws the conclusion that the bacillus dysenteriae is not present in the normal stools or upper layers of the normal intestinal mucosa during life.

G. Zeroila,² at Port Said, examined during 1903-1904 70 cases of dysentery among the pilgrims. He found amœbæ in 34, but no dysentery bacilli in these or in the other 36.

Beginning in July, 1904, and carrying the work through August and September, I examined in the Research Laboratory of the Board of Health 60 specimens taken from the mucous membrane of the rectums of children not having dysentery or diarrhœa.

The technique followed was that now used by all bacteriologists working on dysentery.

The material was obtained from the Willard Parker Hospital, where the doctors and nurses were most courteous and helpful throughout the summer. The cases were watched from the time of entrance to the date of leaving the hospital. The average stay in the hospital was from two to three weeks. Owing to the character of the hospital the children were much older than in most babies' hospitals and less subject to gastro-intestinal disturbances.

The bacilli fished from the plates that in any way resembled dysentery bacilli were tested for agglutination, then planted on all the usual laboratory media and all the sugar media now used for dysentery work.

¹ The dysentery bacillus in relation to the normal intestines of infants, by Dr. Martha Wollstein, in bacteriological and clinical studies of the diarrhœal diseases of infancy, with references to the bacillus dysenteriae (Shiga) from the Rockefeller Institute for Medical Research.

² Zariola, G., Bull. Quarantenain, Alexandria Juin, 1904, p. 110.

Although all the children but one were supposed to have normal stools, several of the specimens examined contained mucus in abnormal amount and were somewhat green in color. The following table contains a summary of the cases examined and gives a brief history of each case:

Children with Normal Stools.

Under 1 Year.	Under 2 Years.	Over 2 Years.	Only Gas Producers Found.	Other Organisms Found.
2.....	+	+	+	Para-dys. Flexner Man. type.
3.....	..	+	+	
4.....	..	+	+	
5.....	..	+	..	Pseudo-dys. Bac. Flexner Man. type.
6.....	..	+	+	
7.....	..	+	..	Bacillus not like dys. found.
8.....	+	Bacillus not like dys. found.
9.....	..	+	..	
10.....	+	Pseudo-dys. Bac. Flexner Man. type.
11.....	+	Pseudo-dys. Bac. Flexner Man. type.
12.....	..	+	..	Pseudo-dys. Bac. Shiga type.
13.....	..	+	..	Pseudo-dys. Bac. Shiga type.
14.....	..	+	..	Pseudo-dys. Bac. Shiga type.
15.....	..	+	..	Pseudo-dys. Bac. Shiga type.
16.....	+	..	+	
19.....	..	+	+	
23.....	..	+	+	Pseudo-dys. Bac. Flexner Man. type.
24.....	..	+	..	Pseudo-dys. Bac. Flexner Man. type.
25.....	..	+	..	Pseudo-dys. Bac. Flexner Man. type.
26.....	..	+	+	Bacillus not like dysentery.
27.....	..	+	+	
28.....	..	+	..	Pseudo-dys. Bac. Flexner Man. type.
29.....	..	+	..	
30.....	..	+	..	Bacilli not like dysentery.
32.....	..	+	+	
33.....	..	+	..	Bacillus not like dysentery.
34.....	..	+	..	Pseudo-dys. Bac. Flexner Man. type.
36.....	+	Bacillus not like dysentery.
38.....	..	+	..	Bacillus not like dysentery.
39.....	..	+	..	Pseudo-dys. Bac. Flexner Man. Type.

Under 1 Year.	Under 2 Years.	Over 2 Years.	Only Gas Producers Found.	Other Organisms Found.
40.....	..	+	..	Bacillus not like dysentery.
41.....	..	+	+	
42.....	..	+	+	
43.....	..	+	..	Bacillus not like dysentery.
44.....	..	+	..	Bacillus not like dysentery.
45.....	..	+	..	Bacillus not like dysentery.
46.....	..	+	+	
47.....	+	..	+	
48.....	..	+	..	Bacillus not like dysentery.
49.....	..	+	..	Bacillus not like dysentery.
50.....	..	+	..	Pseudo-dys. Bac. Flexner Man. type.
51.....	..	+	+	
52.....	..	+	+	
53.....	..	+	+	
54.....	..	+	+	
56.....	+	Pseudo-dys. Bac. Flexner Man. type.
57.....	..	+	..	Many Cocci fished.
58.....	+	..	+	
59.....	..	+	+	
60.....	..	+	+	
61.....	..	+	..	Pseudo-dys. Bac. Shiga type.

Children with Green Stools and Mucus.

Under 1 Year.	Under 2 Years.	Over 2 Years.	Only Gas Producers Found.	Other Organisms Found.
1.....	..	+	+	
17.....	+	..	+	
18.....	+	..	+	
20 blood....	+	Bacillus not like dysentery.
21.....	+	..	+	
22.....	+	Dysentery bacilli found.
31+.....	+	
35.....	+	
37.....	+	Acid pseudo-dys. Bac. Flexner type.

The 120 organisms isolated and carried out were apparently included under 16 varieties, 15 of these being bacilli closely resembling dysentery morphologically and one a coccus, fished from a case where cocci seemed to be the predominating organism.

From one normal case only was a para-dysentery bacillus (Flexner Manila type) isolated. This was of the type fermenting mannite, maltose and saccharose. A single colony was found. The child showed no gastro-intestinal disturbance during eleven days in the hospital. Owing to change of residence on leaving the hospital we have not been able to follow the case. One of the specimens containing flecks of blood and mucus, contained 50 per cent. of the type of para-dysentery fermenting mannite, maltose and saccharose.

The cultures agglutinating with the polyvalent dysenteric horse serum were tested with the extracted serum, using the serum extracted with the acid type for the alkaline, and that extracted with the alkaline for the acid. The only cultures agglutinating were 2-7 and 22-5. The chief differences between the acid types isolated and para-dysentery bacilli were in agglutination and growth in litmus milk, which was slowly coagulated. The alkaline type differed in milk and broth and were much smaller and more regular in size than the Shiga bacillus.

The virulence of the bacilli resembling dysentery was carefully tested on white rats, using the usual method of 24-hour agar slants of equal surface. The acid types corresponded very closely to the para-dysentery types in virulence, but only one, 10-1, was protected by anti-dysenteric serum. The alkaline types were much less virulent than the Shiga type of dysentery bacilli and differed quite markedly in cultural peculiarities.

Four groups, represented by 1-2, 51-1, 56-3 and 56-4, produced a slight amount of gas in glucose fermentation tubes, and were more like the colon bacillus in virulence.

SUMMARY.

The para-dysentery bacillus (Flexner Manila type) was found in one out of 59 cases having apparently healthy intestines. The Shiga bacillus in none. Using the same method in the examination of a very mild case

of dysentery, 50 per cent. of the colonies fished were dysentery bacilli. From 12 cases bacilli were isolated closely resembling para-dysentery bacilli in morphology and virulence, but coagulating milk slowly and agglutinating only in low dilutions of polyvalent anti-dysentery serum from horses.

From 7 cases bacilli were isolated which in mannite media and milk produced no acidity. These were somewhat shorter and more regular in size than the Shiga bacillus. They turned litmus milk slowly white, formed a pellicle on broth and were much less virulent than Shiga bacilli.

A STUDY OF THE DEJECTA OF NORMAL CHILDREN AND OF THOSE SUFFERING FROM ACUTE AND SUBACUTE DIARRHEA WITH REFER- ENCE TO *B. DYSENTERIÆ*.*

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Up to the present time, except in a limited number of cases, *B. dysenteriae*, though widely searched for, has not been found in the dejecta of normal individuals or those suffering from diseases other than dysentery.

Shiga,¹ Flexner,² Drigalski,³ and others, after examination of a large number of cases, chiefly adults, failed to demonstrate the presence of this organism in normal stools.

Duval⁴ states that he found in two instances *B. dysenteriae* of the Flexner-Harris type in the normal stools of milk fed infants.

Wollstein⁵ in a series of thirty-two non-dysenteric infants, did not find *B. dysenteriae* in any instance. In twenty-four other cases examined at autopsy, *B. paradysenteriae* was found in the scrapings from the mucous membrane of the intestines three times. Two of these cases gave a history of previous attacks of diarrhea, while the third case had developed a terminal dysentery five days before death.

Charlton and Jehle,⁶ working in the laboratory of St. Ann's Kinderhospital, Vienna, found, in apparently normal stools, *B. paradysenteriae*, Flexner-Manila type, present in two cases out of ten examined. These cases gave a negative history as to dysentery and diarrhea. The blood of the cases did not agglutinate the cultures obtained from the stools or the Flexner-Manila bacillus.

* The term diarrhea is used wherever the exact nature of the attack was not ascertainable, while the term dysentery is used only in those cases where the organism was isolated. The term paradysentery is applied to the types which ferment mannite, and differ in their agglutination reaction, but in all other respects correspond to the organism isolated by Shiga as the cause of dysentery.

¹ Centralbl. f. Bakt., 1898, 23, p. 599. Ibid., 1898, 24, pp. 817, 913. Deutsch med. Woch., 1901, 27, pp. 741, 765, 783.

² Studies from the Rockefeller Inst. of Med. Res., 1904, 2, p. 121.

³ Veroff. a. j. mil. Sanitätswesen, 1902, 20, p. 86.

⁴ Studies from the Rockefeller Inst. of Med. Res., 1904, 2, p. 42.

⁵ Ibid, p. 193.

⁶ Trans. Assn. American Phys., 1904, p. 405.

The following report comprises a study of seventy-eight cases, of which fifty-seven were children with normal stools and twenty-one were children suffering from acute or subacute diarrhea.

The first series of cases was undertaken during the months of March and April, 1903. At this time, a mild epidemic of dysentery existed in some of the wards at the Nursery and Child's Hospital, New York City. From the stools of several of these cases *B. paradysenteriae*, Park-Mt. Desert type, was isolated. In one case the organism was obtained from the stools before death and at autopsy from the mucous membrane of the lower colon. Thirteen infants having normal stools were selected from these infected wards for examination. In every instance the result was negative.

No special method was used to obtain the material for examination, plates being made as early as possible from the stools as normally passed.

During the month of August of the same year, coincident with the existence of dysentery in some of the wards, the study of normal stools was resumed. On this occasion the cases were taken from the reception ward where dysentery was, presumably, not present. The children examined were for the most part nurselings.

Two cases had had dysentery a few weeks previous to this time; from one case *B. paradysenteriae* had been isolated. At the time of the examination, both infants had recovered and the stools were normal. In neither case was *B. paradysenteriae* found. Seven of the remaining ten cases were also negative, while the tenth case was positive, giving the following history:

Case 1. Age twenty-four months, nursling, healthy. Had been in reception ward three weeks; during this time the stools were normal and there was no history of diarrhea before entering the hospital. The child developed pneumonia three days after the stools were examined and the organism found. In the beginning of the attack there was a slight amount of mucus, but in every other respect the stools were normal and remained so throughout the course of disease. The blood gave a good reaction in dilution of 1:10 with the Flexner-Manila organism.

The organism isolated in this case in the proportion of one of one hundred colonies possesses the following characteristics: Non-motile bacillus, ferments mannite and maltose without production of gas, does not produce gas on glucose or lactose, produces indol and nitrites, renders litmus milk slightly acid, which later becomes alkaline. In the above features it corresponds to the Flexner-Manila type. In its agglutination reactions it resembles the Coney Island and Salant organisms which were isolated from cases of typical clinical dysentery.

A polyvalent dysenteric horse serum agglutinates this bacillus completely in the dilution of 1:500. It raises specific agglutinins for other mannite fermenting types of the dysentery organism. The following table shows by the absorption tests its relation to the Coney Island and Salant cultures:

TABLE I.
Serum of a Horse Inoculated with Shiga, Flexner-Manila and Park-Mt. Desert Types.

Cultures.	Serum Before Exhaustion.						Serum Before Exhaustion with Coney Island Type.						Serum Before Exhaustion with Mt. Desert Type.					
	20	50	100	200	500	1,000	20	50	100	200	500	1,000	20	50	100	200	500	1,000
Japan—Shiga	++	++	++	++	++	++	++	++	++	++	++	—	++	++	++	++	—	—
Manila—Flexner	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	—	—
Mt. Desert—Park	++	++	++	++	++	++	—	—	—
Coney Island—Collins	++	++	++	++	—	++	++	—
New York—Salant	++	++	++	++	—	++	++	—
Normal—Collins	++	++	++	++	—	++	++	—

In the above table the three last cultures exhibit a similar reaction after exhaustion. It is of interest to note that the production of common agglutinins for the Coney Island type is much less than for the Mt. Desert type.

In this series of examinations the material was obtained by the irrigation of the lower colon with sterile water. Plates were made from the first and last parts of the washing. From the latter, bits of mucus could readily be picked out. After withdrawal of the tube, the rectum was swabbed with sterile cotton and plates were made also from the swab.

The next study of fifty-four cases, obtained from several different sources, was made during the months of July, August, and September, 1904. Thirty-three of these cases were children with normal stools, and twenty-one were children suffering from acute or subacute diarrhea. In obtaining material for examination in these cases, I used the method devised by Dr. William H. Park. This consists of a blind tube with quite a good sized opening on the side. The tube is inserted into the rectum and the mucous surface, exposed through the opening in the side, is washed with sterile water. A cotton swab is then passed several times over the surface of the membrane; the swab is placed in a tube of broth and plates are made from this. A platinum loop was tried for scraping the mucous membrane, but it offered no advantage over the swab and was more irritating. In some cases irrigation of the lower colon supplemented the use of the tube, but as the use of the latter eliminated, to a very great extent, the gas producing organisms, it proved a more satisfactory method.

Of the normal cases examined, seventeen were obtained through the courtesy of Dr. Reed from the Babies' Hospital, New York City. These were bottle-fed babies ranging in age from three weeks to twenty-one months. Dysentery existed in the wards at this time, and some gave a past history of diarrhea, but, at the time of examination the stools were normal. In none of these seventeen cases was *B. dysenteriae* or *paradysenteriae* found to be present.

Thirteen normal cases taken from the Foundling Hospital, New York City, were children ranging from two and a half to seven years

of age, who had been in the wards where dysentery existed from three weeks to three years. Out of the thirteen cases two were positive, the history being as follows:

Case 2. Age seven years. Eczema. Had been in the ward three years, and during that time there was no history of diarrhea. The stools were normal at the time of examination. The blood of the child reacted fairly in dilution of 1:20 with the Mt. Desert type of organism, but failed to show even a trace with the Shiga or Flexner-Manila type.

From the mucous surface of the rectum *B. paradysenteriae*, Mt. Desert type, was isolated. This organism agglutinated with a polyvalent dysenteric horse serum, in the dilution of 1:500. With the Mt. Desert specific serum it agglutinated in the dilution of 1:200, which was the full agglutinating index of the serum, but failed to agglutinate with the Flexner-Manila or Shiga specific serum.

Case 3. Age three years. Chronic conjunctivitis. One year in the ward, during which time there was no history of diarrhea. The stools were normal at the time. The blood in this case reacted feebly in dilution of 1:20 with the Flexner-Manila organism and not at all with the other types.

From the rectal mucous membrane *B. paradysenteriae*, Flexner-Manila type, was isolated in proportion of 1:50 of the colonies fished. It agglutinated with the polyvalent serum in the dilution of 1:500; with Flexner-Manila specific 1:100, and was negative with the specific sera of the other types.

During the past summer an epidemic of dysentery occurred in several districts, widely separated from each other, on Staten Island, the blood and stools from several of the dysenteric patients were obtained for examination and, as far as observed, only the Shiga type of organism prevailed.

From one of these infected neighborhoods where sanitary surroundings were very poor, three normal cases were under the following conditions:

Case A. Age seven years. No history of diarrhea. Three members of the family had had dysentery of the Shiga type. One case, in

a child of three years, existed at the time of examination of the normal child, one adult case occurred three weeks previous, and one case two weeks later. Examination of the stools of the normal case was negative.

The twenty-one cases of acute and subacute diarrhea were derived from the Babies' Hospital and the dispensaries of Bellevue Hospital and the German Polyclinic. The infants were bottle-fed and were from six to eighteen months of age. The acute cases presented, in general, the following symptoms:

The onset was sudden, with vomiting, rise of temperature, which was generally high, stools frequent, thin and watery in appearance and sometimes green and frothy. The prostration was marked and mortality high.

In the subacute cases the vomiting was absent, the rise of temperature moderate, if any, the stools thin and sometimes green, with some mucus but no blood; the emaciation was great.

In these cases, the contents of the colon were examined as well as the mucous surface of the rectum, and in no instance was *B. dysenteriae* found.

Charlton and Jehl¹ did not find the dysentery bacillus in the stools of children suffering from so-called summer diarrhea, and Weaver² also failed to demonstrate it as the cause of the summer diarrhea of children.

The limited number of cases reported in which *B. dysenteriae* has been found in the stools of healthy individuals, or those suffering from disease other than dysentery, together with the fact that thus far the organism has not been found normally in adults, renders the interpretation of this phase of the subject difficult.

Flexner³ has not pointed out the advisability of questioning the nature of this organism as to its purely parasitic existence. Investigations along this line will aid greatly in determining the significance of the presence of the organism in the normal individual and in cases where the definite clinical symptoms of dysentery are absent.

Reasoning from analogy, we would readily assume that *B. dysenteriae*, like *B. diphtheriae* and the pneumococcus, may lead a harmless

¹ Loc. cit.

² Jour. Inf. Dis., 1905, 2, p. 81.

³ Loc. cit.

existence in the normal individual until a lowered vitality of the tissues invaded offers a suitable soil for the full development and elaboration of its toxins.

Wollstein¹ calls attention to the difficulty of obtaining reliable histories in the cases of children. This seems to be the experience generally of those who have to do with children. Very few infants, especially of the class generally found in dispensaries and hospitals, escape diarrhea in some form in the early months of life. Hence the finding of the organism under such conditions should not lead us into drawing too definite conclusions.

The failure to find *B. dysenteriae* or *paradysenteriae* in infants suffering from so-called acute and subacute summer diarrhea even though the symptoms were severe and repeated examinations were made, would lead us to suspect some cause or combination of causes other than this organism as the etiological factor in these conditions.

I desire to express my gratitude to Dr. William H. Park, director of the Research Laboratory of the Department of Health, New York City, and to Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, for their suggestions and criticisms of this work.

¹ Loc cit.

SPECIFIC AND NON-SPECIFIC OR GROUP AGGLUTININS.

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AND

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During the past eighteen months the study of the Shiga bacillus and of the mannite-fermenting bacilli has engaged our attention. The confusing statements concerning the degree of similarity in agglutinating characteristics between the dysentery bacilli and the different types of para-dysentery¹ bacilli caused us to inject a large number of horses, goats, and rabbits with different strains of dysentery, para-dysentery and colon bacilla. Many of these animals were tested, every one to three weeks, over long periods of time. The relative accumulation of specific and group agglutinins at different periods during the immunization, in the same and in different species of animals, soon aroused our interest, and the varying proportion of these explained to us, in part, the reasons for the different results reported by different observers. We then broadened our investigations to include a general study of specific and group agglutinins. The more important results of our work are stated as briefly as possible in the following pages, the charts and tables used being from representative experiments.

THE RELATIVE DEVELOPMENT OF SPECIFIC AND GROUP AGGLUTININS.

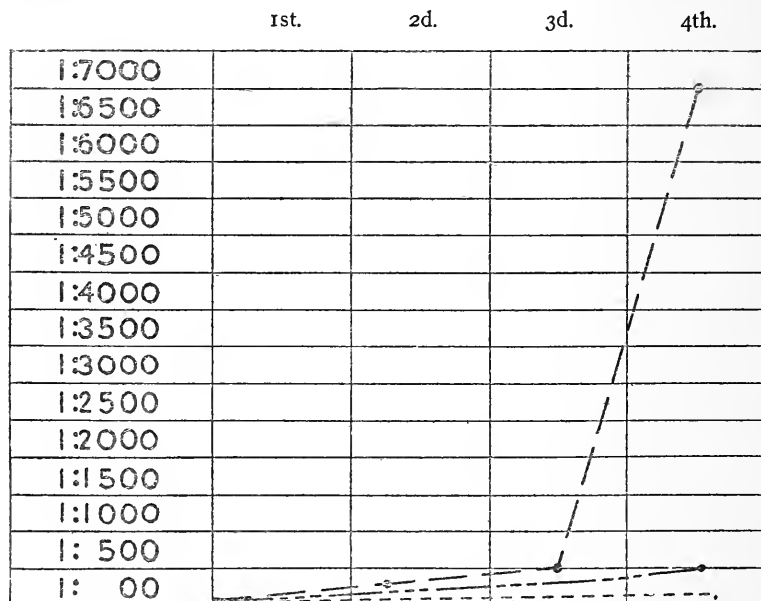
The study of a large number of series of agglutination tests obtained from young goats and rabbits injected with dysentery, para-dysentery, para-colon and colon cultures has shown that there is considerable uniformity in the development of the specific and group agglutinins. The

¹ The term "para-dysentery" is given to varieties of bacilli which differ in important respects from the Shiga variety, and yet are exciting factors in a certain proportion of the cases of epidemic dysentery. These bacilli all differ from the dysentery bacillus of Shiga in that in peptone solution they ferment mannite with the production of acid, and develop indol in peptone solution. Some ferment maltose, saccharose, and dextrin. Varieties fermenting lactose and others producing gas from sugars have not yet fully proven their right to be included among the para-dysentery bacilli. The term "para" is used by us to avoid giving the same name to such entirely different varieties of bacteria as the Shiga and mannite-fermenting bacilli, and at the same time of avoiding the equal error of denying their etiological importance, as is done by the prefix pseudo.

specific agglutinins develop in larger amount in the beginning, being in the second week usually from five to one hundred times as abundant as the group agglutinins. Later the total amount of the group agglutinins tends to approach more nearly to that of the specific, and may reach as high as 50 per cent. In a number of tests carried out by us we found that many group agglutinins supplement specific ones in their action, causing, by their addition, an increased agglutinating strength. In our experience the variety of micro-organisms used for inoculation is, if equally sensitive, agglutinated by the combined specific and group agglutinins produced through its stimulus in a higher dilution than any micro-organism affected merely by the group agglutinins. It is true that bacteria not injected were at times agglutinated in higher dilutions than the variety injected. This, if not due to greater sensitiveness, was, we believe, on account of normal group agglutinins present in the animal before immunization. In horses and adult goats it was found that before injections were commenced there was often a great accumulation of agglutinins for bacteria and especially for members of the dysentery, para-dysentery and colon groups, so that the estimation of the development of specific agglutinins was a matter of great difficulty except through careful absorption experiments. For this reason untreated horse serum is a very dangerous substance to use in differentiating the intestinal bacteria. This is clearly brought out in the record given later of the tests made of the serum of a horse before injections had commenced and after a liter of bouillon had been given. With the tests of the normal horse in mind (Table II.), the figures in Table III. are intelligible. The higher agglutination of the bacteria not used in immunization is seen to be due to group agglutinins present before immunization was begun, and these were probably excited by the absorption into the body of intestinal bacteria.

CHART I.

Rise of Common and Specific Agglutinins During 4 Months in a Rabbit Injected with the Maltose Fermenting Para-dysentery Bacillus (Flexner's Manila Culture).

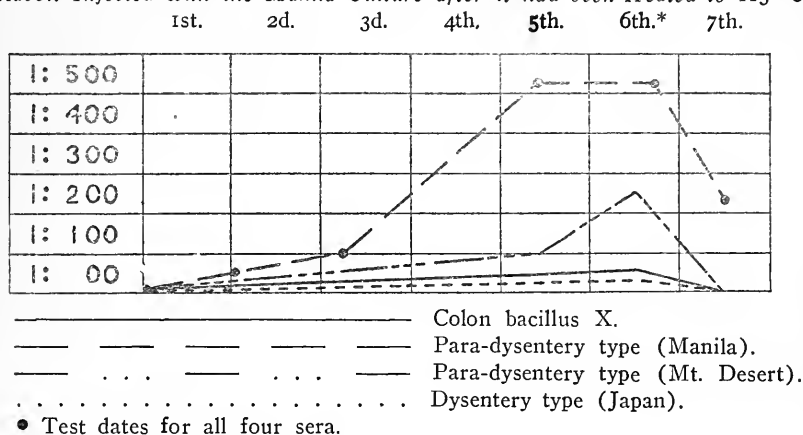


————— Para-dysentery type (Manila).
 — . . . — . . . Para-dysentery type (Mt. Desert).
 Dysentery type (Japan).

• Test dates for all three sera.

CHART II.

The Rise and Fall of Common and Specific Agglutinins During 7 Months in a Rabbit Injected with the Manila Culture after it had been Heated to 115° C.



The relative accumulation of the group and specific agglutinins is seen to vary for the different type and at different times. For the Manila para-dysentery culture of Flexner, which is nearest to the colon in its characteristics, the specific agglutinins were, at the end of the third month, six times as abundant as the group agglutinins acting on the Mt. Desert para-dysentery culture of Park, which represents a type further removed from the colon. At the end of the fourth month they were fourteen times as abundant. For the dysentery bacillus (Shiga) the development of agglutinins was the least (Chart I.). In Chart II. the differences were much less.

Another point of interest is that the proportional amount of agglutinins acting on the different cultures varied at different times. If on tests made of a single bleeding we had attempted to draw conclusions as to the relative development of specific and group agglutinins, we would have had an imperfect view. Many conflicting statements in literature are undoubtedly due to this lack of appreciation of the variability in the relative amount of these two types of agglutinins during a long process of immunization.

The development of group agglutinins for the three dysentery types, caused by the injection of a colon bacillus, presents several points of interest.

* Injections stopped.

CHART III.

Chart of Tests of a Rabbit's Serum Taken During Three Months while Receiving Injections of Colon Bacillus X. It is seen that Common Agglutinins Develop To a Much Greater Degree for Bacilli of the Manila Type than for those of the Mt. Desert Type.

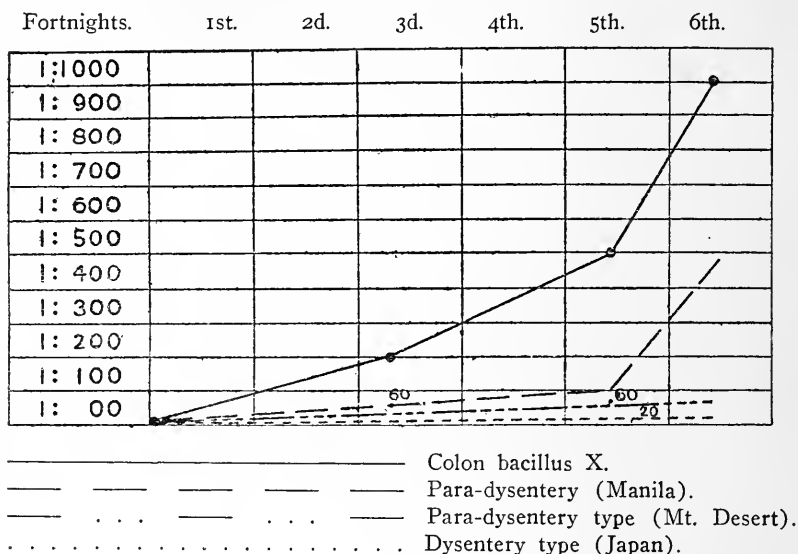
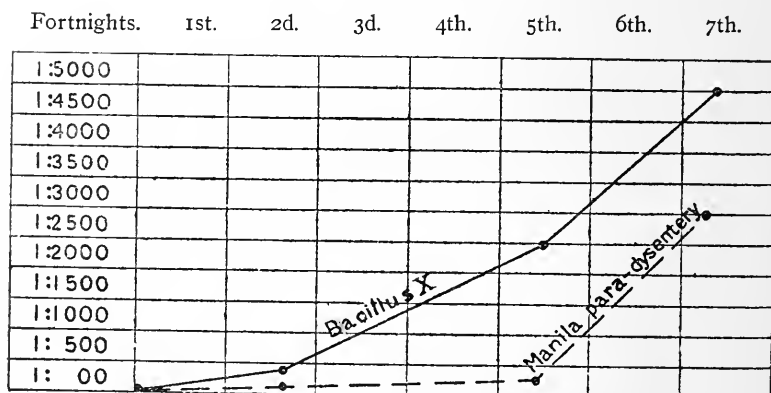


CHART IV.



Similar conditions to those noted in previous chart, except that a young goat has been used for the injections of the Colon Bacillus X.

The great accumulation of common agglutinins for the para-dysentery bacillus, in the third month of the injections of the Bacillus X, is very striking.

- Tests made.

The great height to which the group agglutinins may rise is seen in the following table:

TABLE I.

Agglutinins in the Serum of a Horse Injected with the Manila Para-dysentery Bacillus.

Cultures Tested.	After 18 Injections.			After 21 Injections.		
	1:3,000.	1:5,000.	1:10,000.	1:3,000.	1:5,000.	1:10,000.
Para-dysentery bacillus (Manila).....	++	—	—	++	++	++
Colon bacillus X.....	++	++	—	++	++	++

The great amount of agglutinins acting upon the colon bacillus X. is remarkable. A serum is here seen to be acting in dilutions as high as 1: 10,000 upon a culture possessing very different characteristics from the one used in the injections.

Although a considerable proportion of the group agglutinins acting on colon bacillus X. was undoubtedly due to the stimulus of the injections of the Flexner para-dysentery culture, still a portion of them was probably due to other causes. In Table II. is seen the marked accumulation of agglutinins which may occur in a horse before injections are begun, and the results of injection of nutrient bouillon which had been prepared from meat in the usual way.

TABLE II.

Culture.	A Young Horse Before Inoculation.				The Same One Week After Being Injected with One Liter of Bouillon.			
	1:100.	1:500.	1:1,000.	1:5,000.	1:100.	1:500.	1:1,000.	1:5,000.
Dysentery B., Japan	+	—	—	—	++	—	—	—
Para-dysentery, Mt. Desert	+	—	—	—	++	—	—	—
Para-dysentery, Manila	++	++	++	—	++	++	++	—
Colon bacillus X.	++	+	—	—	++	++	+	—

The fact of most importance which appears in this table is the abundant agglutinins which may be found in a horse which has never received bacterial injections.

Three rabbits injected with nutrient bouillon developed agglutinins for the para-dysentery and some of the colon bacilli.

In one rabbit's serum the Manila culture agglutinated in dilutions of 1 to 150.

TABLE III.

Serum from Two Horses—One Immunized to the Shiga Bacillus and the Other to the Manila Culture—at the End of One Year, during which Weekly Injections were Given.

Cultures Tested for Agglutination.	Serum from Horse Injected with Dysentery B. (Shiga).			Serum from Horse Injected with Para- dysentery B. (Manila).		
	1:500.	1:1,000.	1:5,000.	1:500.	1:1,000.	1:5,000.
Dysentery B., Japan.....	+	—	—	++	—	—
Para-dysentery B., Mt. Desert.....	+	—	—	++	—	—
Para-dysentery B., Manila.....	++	++	—	++	—	—

It is interesting to note that the serum from the horse receiving the Shiga culture agglutinates the para-dysentery culture in higher dilutions than the Shiga culture. In the other serum all cultures were agglutinated in equally high dilutions, in spite of the fact that the para-dysentery type only had been injected.

THE USE OF ABSORPTION METHODS FOR DIFFERENTIATION BETWEEN SPECIFIC AND GROUP AGGLUTININS DUE TO MIXED INFECTION AND TO A SINGLE INFECTION.

It is now well established that if an infection is due to one micro-organism there will be specific agglutinins for that organism, and group agglutinins for that and other more or less allied organisms. If infection is due to two or more varieties of bacteria, there will be specific agglutinins for each of the micro-organisms.

The above facts have been demonstrated by several investigators. The following experiments selected from those reported by Castellani¹ well illustrate these points: A rabbit immunized to B. typhi agglutinated B. typhi 1:5,000, B. coli (31) 1:600. After satura-

¹Zeitschrift f. Hyg., xi, S. 17.

tion with *B. typhi*, all agglutinins were removed for both micro-organisms. A rabbit immunized to both *B. typhi* and *B. coli* (31) agglutinated *B. typhi* 1:4,000, *B. coli* (31) 1:1,000. After saturation with *B. typhi* the serum did not agglutinate *B. typhi*, but *B. coli* (31) 1:900. After saturation with *B. coli* it failed to agglutinate *B. coli* (31), but still agglutinated *B. typhi* 1:4,000.

From these and other experiments Castellani drew the important conclusions:

1. The serum of an animal immunized against a certain micro-organism, when saturated with that micro-organism, loses not only its agglutinating power for that organism, but also for all other varieties that it formerly acted upon. Saturated with the others, its action upon the first is reduced little or not at all.

2. The serum of an animal immunized against two micro-organisms, A and B, loses its agglutination when saturated with A only for A. Saturated with A and B, it loses its agglutinating power for both.

3. These facts may be applied to the diagnosis of an unknown mixed infection. Suppose, for instance, the serum from a typhoid case agglutinates both the laboratory cultures of the typhoid bacilli and those of a variety of the colon group. We saturate the serum with typhoid bacilli. If the serum loses its agglutinating power for the typhoid bacillus only, it is a case of mixed infection with both the typhoid bacillus and the type of colon bacillus used in the test. If the serum loses its agglutination for both the *B. typhi* and the *B. coli*, then it is a pure typhoid infection, the *B. coli* having been agglutinated by the group agglutinins produced because of the typhoid infection.

The conclusions Castellani derived from the facts stated in paragraphs 1 and 2 are not warranted, because of the fact that one variety of bacteria may absorb group agglutinins produced through injections of other varieties of bacteria. The agglutinins in the serum of the supposed case of typhoid fever, which agglutinated the test culture of *B. coli* and were absorbed by *B. typhi*, were not, it is true, produced by the variety of *B. coli* of the test culture, but they may have been produced, and, in fact, probably were, by some other variety of *B. coli*, since it is a well established fact that the *B. typhi* is less apt to produce abundant

group agglutinins for a variety of *B. coli* than are varieties of *B. coli* for another member of their own group, and the *B. typhi* absorbs some of the group agglutinins produced by many varieties of the *B. coli*.

The results of a number of experiments carried out by us demonstrate this. The following tables give the outcome of several experiments:

TABLE IV.

Absorption of the Typhoid Bacillus of Group Agglutinins Acting upon a Number of Varieties of B. coli which were Produced by Another Variety of B. coli. Agglutination of Different Varieties of B. coli by Serum of Rabbit Immunized to Colon Bacillus X. Before and After Addition of Typhoid Bacilli.

Cultures Tested for Agglutination.	Before Addition of Typhoid Bacilli. Agglutination+.	After Attempt at Absorption with Typhoid Bacilli at 22° C. Agglutination+.
Colon bacillus X.....	1:600	1:600
“ “ 1.....	1:500	1:20
“ “ 2.....	1:500	1:30
“ “ 3.....	1:250	1:30
“ “ 4.....	1:250	1:10
“ “ 5.....	1:10	less than 10.
“ bacilli 6-18.....	less than 10	less than 10.
Typhoid bacillus.....	less than 10	less than 10.

The same saturation tried with a para-typhoid bacillus exhausted the serum of its group agglutinins for the above colon bacilli on the average about 50 per cent.

NOTE.—The absorption tests were carried out by adding the bacilli from recent agar cultures to a ten per cent. solution of the serum in a twenty-four-hour bouillon culture. The mixture was allowed to stand for twenty-four hours at about 22° C. It was found that a simple dilution of serum when left at 37° C. sometimes rapidly deteriorated. Thus, in an extreme instance, a positive serum at 1:500 when diluted with bouillon or salts solution 1:25 and left at 37° C. for twenty-four hours lost thirty to forty per cent. of its strength; at 22° C. it lost fifteen to twenty per cent. Left for three hours only, the loss was only five to ten per cent.

TABLE V.

Serum mixture obtained by adding equal parts of serum from an animal injected with a maltose-fermenting para-dysentery culture (Manila) and an animal injected with a para-typhoid bacillus.

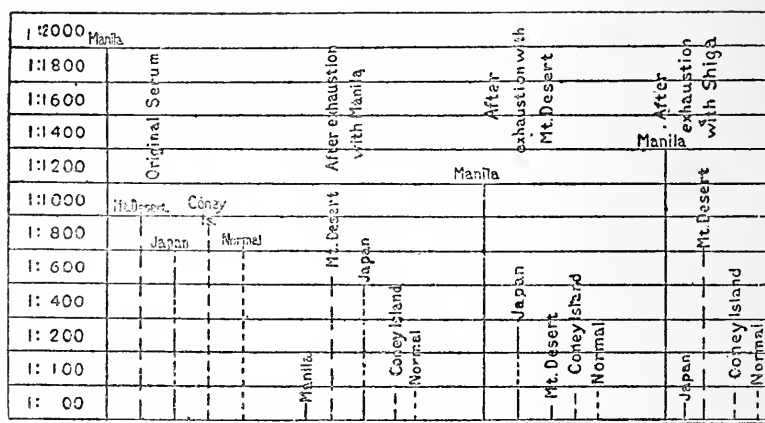
Absorption by the Para-typhoid Bacillus.

	Agglutination.	
	Before Absorption.	After Absorption.
Para-typhoid bacillus.....	1:500	less than 10.
Dysentery bacillus.....	1:1000	1:800
Colon bacillus X.....	1:500	1:10

According to the conclusion of Castellani, the agglutinins acting on colon X. were, by the absorption test with para-typhoid bacilli, proved to be group agglutinins produced for X. by the para-typhoid bacillus, while, as a matter of fact, we know from our tests before making the mixture that the common agglutinins acting on X. were produced chiefly by the para-dysentery bacillus.

The following observation reveals the same fact. A horse injected with Shiga dysentery bacilli and the Mt. Desert type of para-dysentery bacilli was saturated with Shiga bacilli; the agglutinins for the Shiga and Manila culture were removed and the inference is that it was a pure Shiga infection, while, as a matter of fact, the common agglutinins acting on the Manila culture were due to the Mt. Desert infection. A chart giving the result of absorption experiments upon a serum from a horse which had received combined injections with these three cultures is interesting.

CHART V.



————— Manila para-dysentery.
 ———— Mt. Desert para-dysentery.
 Japan dysentery.
 - - - - - and atypical para-dysentery.

Showing the effect of saturating with bacilli of types Shiga, Manila, and Mt. Desert, a serum from a horse which had received combined injections of dysentery bacilli of the three types. Note that the Manila type removed almost all the specific and group agglutinins acting upon its own type and the group agglutinins acting upon the Coney Island and normal types, leaving the specific agglutinins for types Shiga and Mt. Desert. The same is true for types Shiga and Mt. Desert when they were used.

The absorption method simply proves, therefore, that when one variety of bacteria removes all agglutinins for a second, that the agglutinins under question were not produced by that second variety.

The Loss of Capacity in Bacteria to be Agglutinated or to Absorb Agglutinins Because of Growth in Immune Sera—The decrease in agglutinability by growth in sera has been demonstrated by several observers. The loss of the power of absorption was noted by Marshall and Knox. Our experiments are recorded here (Charts VI. and VII.) because they were undertaken in a slightly different way, and to emphasize the purpose of this paper to draw attention to the extreme care necessary to be used in interpreting the results of agglutination tests.

The maltose-fermenting para-dysentery bacillus (Flexner, Manila) was grown on each of eleven consecutive days in fresh bouillon solutions of the serum from a horse immunized through oft-repeated injections of the bacillus. The solutions used were one and one-half, four and fifteen per cent. The serum agglutinated the culture before its treatment in dilutions up to 1:800. After the eleven transfers, the culture grown in the fifteen per cent. solution ceased to be agglutinated by the serum and ceased to absorb its specific agglutinins. The cultures grown in the one and one-half and four per cent. solutions agglutinated well in dilutions up to sixty and one hundred, and continued to absorb agglutinins. The recovery of the capacity to be agglutinated was very slow when the culture was from time to time transplanted on nutrient agar.

CHART VI.

1: 800	
1: 700	
1: 600	
1: 500	
1: 400	
1: 300	
1: 200	
1: 100	
1: 00	

Loss of Agglutinable Substance by Growth on 15 per cent. Immune Serum.

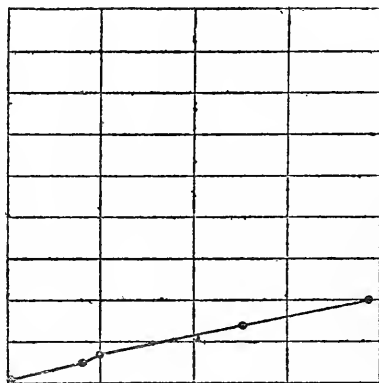
Number of Transplantations.

Before growth in fifteen per cent. solution of immune serum agglutination was complete at 800.

After growth in eleven tubes of serum solution, twenty-four hours in each, absorption of agglutinins did not occur.

After growth on nutrient agar for sixteen weeks (forty-three transplantations) absorption was almost complete.

CHART VII.



Gradual Recovery of Agglutinins after Repeated Transference on Agar.

Number of Transplantations.

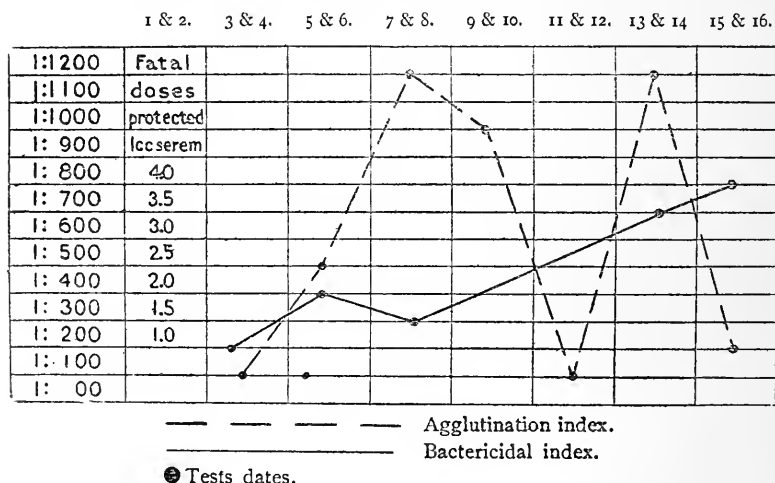
The Relation Between Agglutinating and Bactericidal Power—In spite of proof to the contrary, many good observers hold to the belief that there is a direct relation between the agglutinating and the bactericidal strength of a serum.

The tests we carried out on the serum of a number of horses showed no such relation. In Chart VIII. are recorded a number of comparative tests of the serum of a horse during a period of sixteen months.

For the tests of the bactericidal power of the serum we are indebted to Dr. Mary E. Goodwin. Her tests also showed that there was a production of group, as well as specific immune bodies in the animals receiving prolonged injections. The results of her experiments will be published later.

CHART VIII.

Relation of Agglutinative Power to Bactericidal, Horse Injected with Manila Para-dysentery Culture over a Period of 16 Months.



CONCLUSIONS.

The protoplasm of a single variety of bacteria when injected into a suitable animal (rabbit, goat, horse) excites the production of a number of agglutinins. A portion of these have, so far as is known, an affinity only for the protoplasm peculiar to the variety of bacteria

injected or to organisms nearly identical with it. These agglutinins may, therefore, be properly called specific. The remainder have an affinity for substance found in other varieties of bacteria and agglutinate not only bacteria closely allied to the variety injected, but also others which may differ greatly in many of their biochemical as well as in their specific agglutinating characteristics. These substances, therefore, are not specific. Even the term "group" implies too much relationship. When in animals agglutinins exist before immunization has been begun, they have probably been produced by the passage of bacteria or their products through the intestinal walls or by other ways into the body of the animals.

If an animal is chosen for injections of bacteria whose serum does not as yet contain appreciable agglutinins for the bacteria used, it will be found that in the immunization there is usually at first a much greater development of specific than of group agglutinins.

If the injections are continued for a long period of time, the amount of specific agglutinins will rise to a certain height and then more or less rapidly diminish. At the same time the common agglutinins will also diminish, but they may do so more slowly. The relative amount of specific to non-specific agglutinins thus varies at different times, and a time may come when in the blood the combined common may equal or exceed in amount the specific agglutinins. Thus the serum of a horse treated for a number of months with the maltose-fermenting para-dysentery bacillus (Flexner) agglutinated not only that bacillus in dilutions of about 1 to 10,000, but also a variety of the colon group in the same dilution. The serum of a goat treated with this colon bacillus clumped the colon culture at the end of several weeks of treatment in dilutions of 1 to 2,000, and the para-dysentery culture in dilutions of 1 to 50; later the para-dysentery bacillus was clumped in dilutions of 1 to 3,000, while the colon bacillus was clumped in dilutions only a little higher, 1 to 5,000.

As a general rule it can be said that the agglutinins produced in an animal through the injection of any one variety of bacteria can be exhausted from the serum only by saturating it with sufficient quantities of that variety. Not only the specific but the common agglutinins

stimulated by it will thus be absorbed. All other varieties of bacteria will simply absorb any of the common agglutinins for which they have an affinity. If a serum is thus freed of all common agglutinins, it will clump only the variety of bacteria which was injected in the animal. It must be remembered that the manipulation required in making absorption experiments causes more or less loss of agglutinins and also, as shown by Buxton, that some bacteria destroy them.

Our lack of recognition of the varying relative strength between the specific and the common agglutinins, in the serum of animals at different times during a long period of injections, has led to many conflicting statements. Thus the various dysentery varieties were long considered to have identical affinities for agglutinins because the serum of horses rich in common agglutinins was used.

Similar conflicting statements concerning the presence or absence of common agglutinins between certain colon varieties and the typhoid bacilli are probably accounted for in the same way. The blood of adult animals, especially horses, contains frequently large amounts of group agglutinins acting upon many bacteria. These have probably been produced by the stimulus of bacteria and their products which have passed through the intestinal and other mucous membranes.

The same gradual development of common, along with the specific immune bodies, was noted by Dr. Goodwin for rather closely allied bacteria, such as the dysentery bacilli and certain colon types. The serum of the injected animals protected at first only from the variety injected, but later from the other varieties.

Many investigators have incorrectly stated that when a serum agglutinated bacteria in a high dilution a specific relationship could be safely inferred. Some state a dilution of 1 to 500 is sufficient, others 1 to 1,000. Actual tests of different sera from animals receiving injections prove that agglutination of bacteria may take place in very high dilutions from non-specific agglutinins. The only certain test that can prove that an organism has identical agglutinable substances with another is that it shall be able to absorb from a serum containing specific agglutinins for that other all agglutinins acting upon it. The absorption by one micro-organism of group agglutinins acting upon

another does not prove them to have been produced by the first, the typhoid bacillus, for instance absorbing many group agglutinins acting on colon bacilli which were produced by other varieties of the colon group. As a rule, the serum from young animals which have received but a few recent injections of a single organism will give us a serum having mostly specific agglutinins for that organism.

The injections of bouillon into rabbits frequently cause a considerable production of agglutinins for several colon bacillus types and for the mannite-fermenting (para) dysentery bacilli. As cultures subjected to moist heat at 115 degrees C. for thirty minutes produce abundant agglutinins, the bouillon probably contains products derived from the bacteria developing in it before sterilization.

The statement that the bactericidal properties of a serum can be judged by its agglutinating strength is not founded on fact, since in animals continued under treatment the agglutinins frequently decrease, while the bactericidal substances remain or even increase. The addition of group agglutinins to the specific agglutinins existing in a serum usually raises the agglutinating strength of the serum for the specific micro-organism.

ON THE OCCURRENCE OF TYPHOID BACILLI IN OYSTERS.

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This work was undertaken to determine whether or not the oyster could be a means of infection, and if so, under what conditions it would act in this manner.

The oysters were kept at the Aquarium, where all facilities were granted, and I wish here to acknowledge my thanks to Mr. Townsend, the Director, and the Aquarist, Mr. Spencer. They were kind enough to supply the jars and most of the oysters used in these experiments, the rest of the oysters being obtained from the markets of the city.

TECHNIQUE.

The oysters were placed in large glass jars containing about 8 gallons of sea water balanced with vegetable life; the specific gravity of this water varied from 1.012-1.014. This specific gravity being much lower than that of deep sea water, but not very different in any respect to that over the oyster beds in most localities where they are grown for the market.

The first tank was infected by introducing a liter of a 24-hours' bouillon culture of *bacillus typhosus*, and thoroughly mixing it, at the end of 24 hours the water in the tank was discolored, and at the end of three days was very foul. The oysters were tightly closed. In this first experiment there were placed in the tank, beside the oysters, some soft shell clams and a few little necks. The little neck clams were as tightly closed as the oysters, but the soft shell clams had their syphons fully extended, and some were evidently dead, as they did not retract them on their being touched, while others retracted them, but slowly.

It was evident that the tank was now unbalanced, that is, the vegetable life in it failed to give off sufficient oxygen to support the animal life and that the molluscae were rapidly dying.

They were removed and three oysters and two clams were examined. In oyster No. 1 no typhoid organisms were found, this oyster was normal in every respect and its heart was pulsating when opened. In oyster No. 2 25 per cent. of the organisms isolated from it were found to be *B. typhosus*. In this oyster no signs of life could be detected; on opening No. 3 was dead beyond doubt, and had turned black; in this case all organisms tested were found to be *B. typhosus*.

The two little neck clams examined looked normal in every way, except that no pulsation could be noticed in clam No. 2. No typhoid bacilli could be found in No. 1, whereas No. 2 showed all organisms to be *B. typhosus*.

It was seen from this that this method of infecting the tanks could not be used, so in all further work the tanks were infected in the following manner:

The bacilli were sown on agar planted in flasks. They were incubated for 24 hours. At the end of 24 hours about 20 c. c. of sterile

sodium chloride solution was placed in the flask and the growth washed of the agar into this solution. This was poured into the tank and more fresh sodium chloride solution placed in the flask, to wash the remaining bacilli off, as the whole growth could not be removed at the first washing; this was also added to the tank.

Number of Oysters Tested.	Number of Bacteria Per C. C.	Number of Hours in Infected Tank.	Number of Hours in Uninfected Tank.	Number of Bacteria in Oysters Per C. C.	Per Cent. of B. Typhosus in Oysters.
5	20,000	24	0	1,200	22.0 per cent.
5	14,400	48	0	900	18.0 "
5	8,000	96	0	750	9.0 "
5	6,500	7 days	0	570	7.0 "
5	4,200	9 "	0	490	1.0 "
5	4,600	14 "	0	300	0
5	19,500	24	0	1,300	19.0 "
5	.....	24	24	650	5.5 "
5	.....	24	48	300	3.0 "
5	.....	24	96	240	0
5	.....	24	7 days	200	0
5	.....	24	9 "	210	0
5	.....	24	14 "	190	0
5	.....	24	21 "	200	0
5	.....	24	28 "	190	0

After this the oysters were removed at the end of certain periods for examination. After the first experiment 5 oysters were removed each time; these were washed and scrubbed, to remove as many organisms as possible from the shell, the oyster was then opened by cracking off the edge and inserting a sterile platinum needle and stirring it around and the juice drained into a sterile beaker glass. One-tenth of a c. c. of this juice was used to inoculate each tube of plate media. The plates were incubated for 48 hours, and then either 20 or 40 colonies were plated in bouillon, that is, 20 or 40 colonies from each oyster of the 5 removed, making either 100 or 200 colonies examined. At the end of 24 hours the bouillon cultures were tested in the hanging drop with the serum of a young goat immunized to *B. typhosus*, and having great agglutinative power; for this organism the dilution used was 1-800.

If the organism in the tube did not agglutinate they were thrown out and no further test was made on them. If they showed agglutination they were planted in Dunham's solution, and tested for indol, also in lactos bouillon for gas production, and in milk for coagulation; but later in my work I relied wholly on the agglutination test.

In all organisms tested no organisms were found which agglutinated in this dilution that failed to react in a similar manner to *B. typhosus* when sown in the above medias.

Therefore, for *B. typhosus* I have found the agglutination reaction the most reliable test as a means of identification of this organism.

It will be seen from Chart 1 that when the oysters remain in the infected water the *B. typhosus* may remain present until the seventh day, but when removed to fresh sea water they disappear before the third and fourth day.

This is the result of dilution and the action of the sea water. I found that in the sea water used in these experiments *B. typhosus* was destroyed in from 6 to 8 days, 50 per cent. being destroyed in the first 24 hours.

When the oysters were removed from the infected tank and kept either directly on ice or else in a compartment of the ice box, that there was a very slight diminution of the number of bacteria per c. c., and a slight increase in the per cent. of *B. typhosus* present. Thus, if oysters have been infected they may retain this infected material, and in this manner may act as a disseminator of the disease.

Now the question arises, does the oyster ever come in contact with infective material, and if it does, does not the fresh sea water over its beds dilute and destroy the organism? To this I should say that if the oysters were taken from the beds situated in deep water, where the flood tide brought pure deep sea water to them, that there would be very slight chance of infection. But it is not from these beds that the oysters are brought to market. After they are brought up from these beds they are generally taken up to small or large creeks, where the water is brackish, and deposited in small houses built in the stream, but on its edge; these houses at low tide are nearly dry, but as the tide rises they become filled with the water which finally covers the oysters; as the

water covers them you can hear the hissing noise made by the oysters as they suck it in. This water having a specific gravity less than that which has covered the oysters on their native beds, there occurs, owing to osmosis, an enlargement of the oysters, making them fat or plump. This process is, therefore, called fattening and plumping or drinking.

The great danger in this is that the streams used for this purpose may be contaminated by sewage, and should a case of typhoid fever occur among those whose sewage drains into the stream the oysters may become polluted.

This was just what occurred in the epidemic at Middletown, Conn., in 1894, and it was traced directly to oysters fattened on the banks of the Quinapeack river, near New Haven. There had occurred, a short time before, a case of typhoid fever in a person living on this stream, and their discharges had been drained directly into this river.

Wherever this lot of oysters had been shipped there had followed typhoid fever in those who had eaten them.

The conditions are still the same in many places where oysters are shipped to market. In one stream I took samples of the water around the drink houses, and in every sample isolated *B. Coli Communis*.

In conclusion, it would seem as though the only method to protect the public would be to forbid the sale of fattened oysters, and to enforce it, also to see that oyster beds were not subject to contamination from streams used for sewage purposes. The most important being the prevention of the process of fattening where the water was or could be contaminated.

CHARACTERISTICS OF COLON BACILLI AND THE VALUE OF THE PRESUMPTIVE TEST.

GRACE VAN EVEREN STOUGHTON, B. S.,

Assistant Bacteriologist.

In November, 1903, an investigation was begun under the direction of Dr. William H. Park, in order to study anew what has already been the subject of considerable research work, namely, the colon-like and sewage streptococcus type of normal, and incidentally of diarrheal stools; how far the typical *B. coli* organism can be safely used as an index of pollution; and whether the presumptive test, as still applied in some important laboratories, can be relied upon as giving a fair basis for a reasonably correct judgment of waters used as sources of drinking water supply.

In the first experiments nine specimens of normal human stools from as many sources were examined. In each case a flask containing 100 c. c. of sterile tap water was inoculated with a large loopful of feces, and plates made with .1 and 1 c. c. of water from each flask directly and at intervals varying from two days to a week and extending over a period of two and a half to three months.

It will be seen from Table 1 that seven, or 77 per cent. of the first series of plates made from one c. c. of the diluted feces in the nine inoculated flasks show evidence of *B. coli*, and of the six plated at the end of six weeks, five still contain abundant colon bacilli. Of those plated at the end of 10 weeks, more than 50 per cent. show *B. coli* to be still abundant.

TABLE I.

Percentage of Colonies of Colon-like and Sewage Streptococcus Types Developing in Nutrient Agar at 37° C. from Successive Platings from Flasks Inoculated with Normal Stools.

	Time.	Per Cent. of Colon-like Colonies.	Per Cent. of Sewage, Streptococcus Type.
Flask 1.			
First plating.....	0	84	4
Second plating.....	3 days.	90	0
Third plating.....	8 "	78	0
Fourth plating.....	10 "	100	0
Fifth plating.....	16 "	100	0
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..
Flask 2.			
First plating.....	0	6	6
Second plating.....	3 days.	100	0
Third plating.....	8 "	96	0
Fourth plating.....	10 "	74	0
Fifth plating.....	16 "	26	0
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..
Flask 3.			
First plating.....	0	63	0
Second plating.....	2 days.	0	0
Third plating.....	5 "	73	0
Fourth plating.....	15 "	89	0
Fifth plating.....	3 weeks.	53	0
Sixth plating.....	7 "	60	0
Seventh plating.....	11 "	82	0
Flask 4.			
First plating.....	0	71	7
Second plating.....	2 days.	63	18
Third plating.....	9 "	10	0
Fourth plating.....	16 "	0	0

	Time.	Per Cent of. Colon-like Colonies.	Per Cent of Sevage, Streptococcus Type.
Fifth plating.....	6 weeks.	25	0
Sixth plating.....	10 "	5	0
Seventh plating.....	....	..	..
Flask 5.			
First plating.....	0	100	0
Second plating.....	8 days.	0	0
Third plating.....	15 "	0	0
Fourth plating.....	6 weeks.	0	0
Fifth plating.....	10 "	0	0
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..
Flask 6.			
First plating.....	0	0	12
Second plating.....	7 days.	0	10
Third plating.....	14 "	0	92
Fourth plating.....	6 weeks.	0	93
Fifth plating.....	10 "	0	75
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..
Flask 7.			
First plating.....	0	71	19
Second plating.....	7 days.	50	0
Third plating.....	14 "	30	5
Fourth plating.....	6 weeks.	93	0
Fifth plating.....	10 "	85	0
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..
Flask 8.*			
First plating.....	0	0	4
Second plating.....	5 days.	26	4
Third plating.....	12 "	35	0
Fourth plating.....	6 weeks.	80	20
Fifth plating.....	10 "	80	5

* No streptococcus actually isolated in this case.

	Time.	Per Cent. of Colon-like Colonies.	Per Cent. of Sewage, Streptococcus Type.
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..
Flask 9.			
First plating.....	0	36	32
Second plating.....	5 days.	0	0
Third plating.....	12 "	4	0
Fourth plating.....	6 weeks.	81	0
Fifth plating.....	10 "	0	10
Sixth plating.....	....	..	..
Seventh plating.....	....	..	..

From two of the nine original flasks no colon-like colonies, in fact, no gas producers whatever, were obtained in the quantity used at the first plating; one gave them subsequently, while the other gave none at any time during the 10 weeks that the flasks were under observation. It is interesting to note that organisms of the sewage streptococcus type were found to be present in every series of plates made from the flask containing no colon bacilli. Although this experiment is made with only nine samples of normal stools, the statement that *B. coli* will be abundantly present in waters subjected to multiple human pollution will be but a fair deduction from the table. It is also evident that in those cases where pollution from but one person occurred, and where *B. coli* was not found in any series of plates, that in the majority of cases organisms of the sewage streptococcus type would have given at least an indication of pollution.

Agglutination Experiments—A group of 14 colon-like organisms, taken at random from the feces of the 9 cases under discussion, and, of course, all of them unquestionably intestinal bacteria, were examined for agglutination reactions, and attempts were made to obtain with them an agglutinating serum for *B. coli* which should be diagnostic.

In carrying out this part of the investigation a large number of rabbits were inoculated by us with separate strains of coli, and several

with mixed strains of coli cultures. The rabbits were bled and their serum tested for agglutinating reactions with the 14 cultures just mentioned. No original rabbit serum reacted strongly with any culture in a higher dilution than 1:50.

By successive inoculations of a mixture of two or three coli strains for each rabbit, it was found by testing the sera that specific agglutinins for just those strains which had been used could be raised.

Indeed, for the majority of the cultures, other than those injected, no appreciable amount of non-specific or group agglutinins developed. Only a few cultures of those not injected agglutinated slightly in the sera in 1:20 dilutions, and in most cases these cultures were derived from the same person as one of the cultures used in immunizing the animals. This result does not harmonize with the belief expressed by some that even though cultures of *B. coli*, isolated from different persons, reacted to different specific agglutinins, yet among the total specific agglutinins acting on each *B. coli* there would be one or more acting on all or at least on a large number. In our experience no more common agglutinins are found among many different cultures of *B. coli* than are common to a strain of *B. coli* and cultures of the mannite fermenting para-dysentery bacilli.

The results of our work will be found in Table 2.

TABLE 2.

Agglutination Reactions with Group of 14 Coli Strains from Normal Stools.

Rabbit 1. (Inoculated with Coli Strains 1, 7 and 12.)	1:100	1:200	1:500	1:1000
1.....	++	+	±	
7.....	++	++	±	
12.....	+	+	±	1

With eleven other Coli strains a negative or only slight reaction was obtained at 1:20.

++ signifies a complete reaction.

+ signifies a good reaction.

1 signifies a slight reaction.

Rabbit 2. (Inoculated with Coli Strains 3, 4 and 10.)	1:100	1:200	1:500	1:1000
3.....		+1	±	1
4.....	++	+	±	1
10.....	++	++	+1	+

With strains 1 and 2 a fair reaction was obtained at 1:50; with nine other Coli strains a negative or only slight reaction was obtained at 1:20.

Rabbit 3. (Inoculated with Coli Strains 2, 8 and 13.)	1:100	1:200	1:500	1:1000
2.....	++	++	++	±
8.....	+1	+	+	
13.....	+	±	±	

With strains 1 and 7 a fair reaction was obtained at 1:50; with 12 a fair reaction at 1:20; with eight others a negative or only slight reaction was obtained at 1:20.

Rabbit 4. (Inoculated with Coli Strains 5, 6 and 14.)	1:100	1:200	1:500	1:1000
5.....	+1	+1		
6.....	±	±	±	±
14.....	±	1		

With strain 1 a fair reaction was obtained at 1:50; with eleven others a negative or only slight reaction was obtained at 1:20.

Rabbit 5. (Inoculated with Strains 9 and 11.)	1:100	1:200	1:500	1:1000
9.....	+	±		
11.....	±	1		

With strain 10 a fair reaction was obtained at 1:50; with eleven other cultures only a negative or slight reaction was obtained at 1:20.

Other rabbits were inoculated with single strains, but in no case were agglutinins developed which were specific for members of the coli group. The sera obtained were only specific for the single strain used, and possibly specific to a smaller extent to another organism from the same specimen of stools.

Horse sera obtained by the inoculation of dysentery cultures were used to test these 14 organisms under discussion as well as 10 to 20 other coli strains.

Horse serum 221 gave the following results with the 14 cultures under discussion:

	1:100	1:200	1:500	1:1000
1.....	+1	+	1	—
2.....	1	—	—	—
7.....	+	±	1	—
10.....	+	±	1	—
12.....	+	+	1	—

With 7 other strains a negative or only slight agglutinin reaction was obtained at 1:20, and with the remaining two a fair and slight reaction at 1:50.

With 23 additional coli cultures from abnormal stools 4 gave no reaction at 1:20, 6 showed a tendency to agglutinate at 1:50, 8 still showed a tendency at 1:100, 4 at 1:200; 1, Colon Y, still gave a good reaction at 1:500, and showed a tendency at 1:1000. This one organism, Colon Y, has been of especial interest in our laboratory since it was isolated from diarrheal stools from several cases. It conforms absolutely to the rigid cultural tests for *B. coli*, and behaves in its agglutination reactions very much like the Flexner Manila culture of paradyentery. Colon X rabbit serum, while agglutinating its own organism in a dilution of 1:1000, agglutinated strain 2 to 1:100 completely, gave a good reaction with strain 7 at 1:500, no reaction with strains 3 and 4, and only a fair reaction at 1:50 with strains 10:12.

Further attempts to obtain a serum which should be specific for the colon group were then abandoned. We are inclined to the belief that just as there are innumerable coli strains, so there may be as many specific agglutinins, and any attempt to classify coli by agglutination reactions would be correspondingly futile. It would be equally incorrect to refuse to include in the colon group any bacillus because it failed to be agglutinated by a serum which had been obtained from an animal which had received numerous strains of *B. coli*.

BIOCHEMICAL CHARACTERISTICS.

In addition to the 14 coli cultures mentioned in connection with the agglutination experiments, 34 other strains of coli were studied, the entire number, 48, being obtained from 34 different specimens of stools from as many persons. These 48 strains are, therefore, of intestinal origin and are all members of the colon group even if a very few do not conform strictly to every test for *B. coli*. All produce gas in dextrose broth, all but two are acid producers, and none liquefy gelatin in 10 to 14 days. All but four produce indol in three days, all produce nitrites in nitrate solution, all but five produce gas in neutral red lactose broth. Twelve out of 30 that were tested on saccharose broth gave no gas, or only a bubble, 18 giving gas which varied from 1 to 50 per cent. in amount. The gas produced in dextrose broth by these 48 cultures varies from 15 to 90 per cent. of the closed arm.

2 gave 15 per cent.	7 gave 40 per cent.	2 gave 60 per cent.
2 gave 20 per cent.	2 gave 45 per cent.	1 gave 65 per cent.
6 gave 25 per cent.	10 gave 50 per cent.	2 gave 75 per cent.
4 gave 30 per cent.	1 gave 55 per cent.	1 gave 90 per cent.
8 gave 35 per cent.		

Of the total gas collected in the closed arm of the fermentation tube CO_2 formed from a trace to 65 per cent. H_2 was constantly present. The tests of these bacilli, which undoubtedly belong to the human colon group, indicate that different strains produce a widely different amount of gas and, to some extent, of proportion of CO_2 to H_2 . Fifty colonies having the characteristics of colon bacilli were fished from a lactose litmus agar plate which had been inoculated directly with normal feces from a single case. These 50 cultures were then inoculated into saccharose, lactose, dextrose and mannite with the following results:

All 50 cultures fermented mannite with the production of acid and of visible gas, coagulated milk within three days, and produced indol within the same time; none of them changed gelatin within a period of 10 days. All changed neutral red to yellow red in lactose broth and caused a gas production of between 20 and 30 per cent. of the height of the closed arm of the fermentation tube. The amount of

gas in dextrose varied between 20 and 60 per cent. of which CO_2 composed 20 to 60 per cent. The following division of gas amount was noted: 20 per cent., 20; 25 per cent., 12; 30 per cent., 7; 35 per cent., 4; 40 per cent., 4; 50 per cent., 2; and 60 per cent., 1.

The chief difference was noted in saccharose broth. In this sugar 23 produced visible gas and 27 produced none. Of the 23 producing gas, only 18 produced appreciable acid. Of the 27 producing no gas, 18 produced acid. The gas amount in the acid producing cultures varied from 1 to 10 per cent. In the cultures producing an excess of alkali, 1 to 40 per cent. Of the cultures producing the greatest amount of gas in dextrose and lactose, two produced no visible gas in saccharose.

Of the 98 *B. coli* cultures studied, only nine would be ruled out of the strict *B. coli* type, and of these five conform to every test but that of fermenting lactose, and four to every test except that of indol production. Seven of the nine were obtained from diarrheal stools. In fact, these slightly irregular coli types seem to be more frequently encountered in abnormal than in normal stools.

Passing now from the study of colon types as found in the human intestines to the examination of drinking waters suspected of pollution, we see, as has already been shown, that a search for *B. coli* and the sewage streptococcus would hardly fail to reveal pollution. After some preliminary work with the presumptive test for *B. coli* in dextrose broth, which will be discussed again later, we were led to the conclusion, that while the correct percentage of total gas and a proper gas ratio might really indicate the presence of *B. coli*, yet the reverse proposition, that an incorrect percentage of total gas and an improper gas ratio precludes the presence of *B. coli*, cannot be held.

In the examinations of Croton tap water we used the Lawrence method for *B. coli* identification as developed and used by Mr. Gage, and in every case where *B. coli* is spoken of as being found the cultures were fully identified at the laboratory.

The value of the so-called presumptive test for *B. coli*, depending, as it does, on the amount of gas formed in fermentation tubes from dextrose broth and the proportion of carbon dioxide and hydrogen in the gas formed, would unquestionably be great, if it could be proved

to be accurate as well as rapid. Gage (Massachusetts State Board of Health, 1902) however, finds that certain waters of known purity would be condemned by the presumptive test, while in the examination of the shellfish very erroneous results would be obtained, if the presumptive test alone were used.

Prescott and Winslow in their book, "Elements of Water Bacteriology," speak of the value as a presumptive test of the gas formation in dextrose broth. They admit that the distinction between positive and negative is not absolute, but they consider Whipple's results, obtained by examining a number of surface water supplies, as being very striking and in general sound.

In our experience we have found that our own municipal supply, with its main reservoirs and lakes, guarded carefully, and many small streams in the region of Mt. Kisco and Katonah, left comparatively unprotected and open to definite pollution, is never free from coli. So far as we have tested, it is constantly present in amounts of 10 c.c., and frequently in 1 c.c. The filling of the new reservoir is expected to take place in April. This will give longer storage to the water and thus improve its quality. These cultures were isolated by us by the method used by Mr. Gage at the Lawrence Experiment Station. The method, as modified by us, consists in inoculating dextrose broth with varying amounts of water under examination, and plating out on lactose litmus agar from any tubes showing evidence of fermentation after 16:18 hours' growth at 37 degrees C. Thus in 48 hours lactose litmus agar plates will be obtained which, to the trained observer, will give a better basis for a preliminary judgment of the water being tested than the preliminary fermentation test alone, and colonies picked from these lactose litmus agar plates can be transferred to agar and carried through the confirmatory tests for *B. coli* as a matter of routine procedure. We present a table (Table 3), giving in parallel columns the results of *B. coli* cultures isolated from Croton water and confirmed by the Lawrence method, in column 1, and results of presumptive tests given in column 2. The *B. coli* cultures were all isolated from samples taken by us at the tap in the Research Laboratory, foot of East Sixteenth street, and a few from the tap at City Hall Park. The presumptive tests, on

the other hand, were made on samples taken from the One Hundred and Thirty-fifth Street Gate House. The table has the additional value, even though the results are few in number, of giving under the heading of the presumptive tests the published reports* of the Water Supply Department, and their opinion of the water was based on Mr. Whipple's provisional interpretation of presumptive tests given out in 1903, yet, while the presumptive tests are almost uniformly negative, *B. coli* has been constantly isolated by us in quantities varying from 1 c.c. to 10 c.c. The Water Supply Department had further stated that considerable purification takes place between One Hundred and Thirty-fifth Street Gate House and the City Hall. At Sixteenth street, which is midway between the two stations, we should expect to get water that had at least half the purification that the City Hall water would show and therefore purer than at One Hundred and Ninety-fifth street.

*We are indebted to Dr. Jackson, Director of the laboratory, for these reports.

TABLE 3.

Date 1904.	Coli Cultures Isolated at Research Lab. from Croton Water.	Quantity and Sources.	Water Supply Reports Based on Presumptive Tests.		
			C. C. 0.1	C. C. 1.0	C. C. 10.0
September 6.....	Croton 1	1 c. c. E. 16th St.			
	" 2		0	0	0
	" 3				
	" 4				
September 13.....	" 8	1 c. c. E. 16th St.	0	0	0
September 20.....	" 9, 10, 11	1 c. c. E. 16th St.	0	0	0
September 28.....	" 13, 14.	10 c. c. E. 16th St.	0	0	0
October 4.....	" 15				
	" 18 (City Hall)	10 c. c. E. 16th St.	0	0	0
October 11.....	" 19, 20, 21	1 c. c. E. 16th St.	0	0	0
	" 22, 23	10 c. c. City Hall	0	0	0
October 18.....	" 24, 25	1 c. c. E. 16th St.	0	+	+
	" 26, 27	1 c. c. City Hall			
November 23.....	" 28, 29	1 c. c. E. 16th St.	0	0	0
November 25.....	" 31, 32, 33	1 c. c. "	0	0	0
November 26	" 34, 35	100 c. c. "	0	0	0
		(10 c. c. not tested)			
November 28.....	" 36, 37, 38, 39	10 c. c. E. 16th St.	0	0	0
November 29.....	" 40, 41	10 c. c. "	0	0	0
November 30.....	" 42	1 c. c. "	} 0	0	+
	" 43, 44	10 c. c. "			
December 1.....	" 45, 46	40 c. c. "	0	+	0
December 2.....	" 47, 48	10 c. c. "	0	0	0
December 5.....	" 49, 50, 51, 52	10 c. c. "	0	0	0
December 6.....	" 53, 54	10 c. c. "	0	0	0
December 7.....	" 57, 58, 59, 60	10 c. c. "	0	0	+
December 8.....	" 61, 62	10 c. c. "			
	" 63	10 c. c. "	0	0	+
December 9.....	" 64, 65, 66	10 c. c. "	0	0	0

We have repeatedly found that waters giving a positive result with presumptive test in .1 c.c. have given a negative result with 1 c.c. and with 10 c.c., the growth of a considerable number of varieties of bacteria interfering with the action of the colon bacilli.

A presumptive test which frequently fails completely to reveal the presence of *B. coli* where it is a comparatively simple matter to find it by another method is certainly of questionable value, and should be subjected to rigid investigation before basing any very definite opinions on the quality of the water supply under examination.

THE PRACTICAL VALUE OF R. STERN'S BACTERICIDAL TEST OF TYPHOID SERA.

MARY E. GOODWIN, M. D., Assistant Bacteriologist

R. Stern, of Breslau, after examining the blood of 59 typhoid and 90 non-typhoid cases for its bactericidal power on typhoid bacilli, decided that the bacilli were destroyed by much higher dilutions of the typhoid blood than of the normal.

He found no fixed relation between the day in the disease when the blood was taken and the amount of immune body it contained. He gives as his strongest serum one which showed a decided reaction in a 1-4000000 dilution. The earliest day on which the bactericidal power was marked was the eighth, in one case the serum reacting in a 1-40000 dilution and in another in a 1-4000 dilution. The agglutinating power of the typhoid sera was not shown in nearly as high dilutions as the bactericidal power. He concludes by saying that the higher the dilution showing bactericidal action the greater probability of the case being typhoid.

His technique is, in brief, as follows: After inactivating the sera at 55 degrees C. for 30 minutes, he makes the dilutions with 0.85 per cent. salt solution. For the complement he takes fresh rabbit serum in a dilution of one part to eleven of salt solution. The typhoid culture used was one which had been isolated about one year and was of moderate resistance, he having found that those recently isolated were too resistant, while the old cultures were killed by the rabbit serum alone. He put together in small test tubes 1 c.c. of the serum dilution, $\frac{1}{2}$ c.c. of a 1-5000 dilution of a twenty-four hour bouillon typhoid culture in bouillon and $\frac{1}{2}$ c. c. of the diluted rabbit serum, always using as a control 1 c. c. of salt solution with $\frac{1}{2}$ c. c. of diluted culture and $\frac{1}{2}$ c. c. diluted rabbit serum. His control he plated from immediately, then put all the tubes at incubator temperature for two to four hours. At the end of that time he plated them all in agar, incubated the plates and counted after twelve to eighteen hours. All of this process Stern says can be done in one half hour for one serum and the time reduced when more than one serum were tested at the same time.

In testing 27 typhoid sera and 7 normal sera in the Board of Health Laboratory, we found the test more difficult than the general tone of Stern's article suggested. The rabbit serum differed so much in its immune body content that sometimes it was necessary to test several rabbits before finding one that would not destroy too large a proportion of the bacilli added. After several failures a Mount Sinai Hospital culture and a New York Hospital culture which seemed to be suitably resistant were found. Among the few cases examined no serum was found of such unusual strength as Stern's, which showed the decided reaction in a 1-4000000 dilution. None of the sera showed a reaction above 1-200000; the highest dilution of a normal serum showing a reaction was 1-100. The earliest serum tested was from a ten-day typhoid. A 1-500 dilution gave a plate of 8,000 colonies, while the normal serum control contained 100,000 in the same dilution. The bactericidal power was found in much higher dilutions than that of the agglutinating. It took much longer time to make the test, about two hours for a single serum and an hour for each additional one. The test seemed too complicated for routine laboratory work, but of undoubted value in obscure cases, where a diagnosis could not be made. The full value of the results can not be estimated until work has been done on obscure cases of colon and dysentery infection, where one might be misled by the large amount of common immune body present.

DR. A. W. WILLIAMS.

The Etiology of Variola.

The studies in regard to the nature of the specific cause of vaccinia and variola were continued, and it was decided that the evidences in favor of certain cell inclusions in the epithelial lesions of these diseases being protozoa were much stronger than those against the theory.

The Rapid Diagnosis of Rabies by the Examination of Smears of Brain Tissue.

The experimental work in hydrophobia, with a view to determining its causative agent, resulted in a method of rapid diagnosis from smears which is very satisfactory. It was found that the negri bodies, studied previously only in sections which had been proven by us as well as by

others to be diagnostic of hydrophobia, could be stained even more characteristically, as well as more quickly in smears than in sections. The practical points about this method are the following:

1. The diagnosis can be made in half an hour instead of one to several days.
2. The identification of the bodies is easier.
3. No animal inoculations need be made.

All work is correspondingly lessened, therefore the expense is comparatively little.

Work on pneumonia in co-operation with that planned by the commission appointed by the Health Department was begun in the fall of 1904. The results obtained as yet are incomplete, and will be reported in connection with that for the year 1905.

ON THE PRESENCE OF MALLORY'S CYCLASTER SCARLATINALIS IN THE SKIN OF SCARLET FEVER PATIENTS.

CYRUS W. FIELD, M. D.

These bodies were described by Mallory before the Society of Medical Research in Boston, on the fifteenth of December, his paper being published in the January number of the "Journal of Medical Research," 1904. He had found the bodies first in the skin of a boy who had died on the third day of the rash. There were three specimens examined, one each from the thorax, abdomen and thigh. One of these pieces showed the bodies present in the epithelial cells, between the lymph cells, and in the lymph space of the corium. In another piece there were a few and in a third none at all. Mallory had examined this specimen, as he wished to compare forms of degeneration in scarlatina with those found in variola, and had found bodies he had not noticed before. He had had three other cases in which the same bodies were found. These scarlatinal bodies stain only by the eosin methylene blue stain, and cannot be demonstrated by the hemotoxylin or Borrell stain. Dr. Mallory had tried a number of other stains, as the author has also. Alcohol-hardened sections could be used, but alcohol is not a good fixative, Zenkers' giving by far the best results. Mallory had stated that the bodies first appeared in the epithelial cells of the deeper layers, as small rosette-like bodies connected by more delicate lighter blue staining material with a central point. In a later stage they break up and then enlarge in the cell. These large bodies were homogeneous staining with methylene blue, and as they increased they became reticular. They were both intra and extra-cellular, and the latter showed what appeared to be ameboid forms. The determination of the exact pathological significance of these bodies is a very difficult matter, and it cannot be proved on purely morphological grounds. In sections of corneas treated with diphtheria toxin, Dr. Ewing has shown that we can get keratinization which simulates the ameboid forms. It is supposed that they enter the cells and there become larger, thickening and giving out a smaller reticular structure; then they enlarge gradu-

ally, become more dense, homogeneous, shrink and finally form rosettes again; how many times they pass through the cycle, Mallory was not prepared to say. He had found them in four cases in the skin, in the epithelial lymph sinuses of the tongue in one. The author examined skin from the groin of five scarlet fever patients dead from the disease, two patients dying on the third day of the rash, one on the second day, two on the fourth day. In all five cases he had found these bodies. (Mallory had examined them and had agreed that they were similar to those he found.) The author also examined the skin of four patients living at the time the skin was taken; in one case on the first day, in two cases on the fifth day, and in one on the sixth day of disease. In none had he been able to demonstrate the presence of these bodies. The skin had been taken from the thorax and not from the thigh. He was able to find reticular bodies in the cells, a few outside of cells and a few he was not sure of, and he was not sure at all that they were in the lymph sinuses. He had been unable to find any of Mallory's rosettes. In the opinion of the writer these bodies were much more definite and delicate in structure than any degeneration had been. They stained in a manner similar to the malarial parasite, but not so intensely. They do not take up methylene blue so intensely. What their origin is, or how they pass into the skin, the author does not know, except that from the appearance of the skin, they seem to have entered by way of the lymphatics. The significance of the bodies might be determined from the morphological status in time, but the problem would require a great deal of control work on sections of skin from a variety of conditions. The author does not accept them as protozoa or degenerations, and at present is a complete agnostic on the subject.

[Abstract from the report read before the N. Y. Pathological Society.]

PERIOD OF THE GREATEST ACCUMULATION OF TETANUS
TOXIN IN BROTH CULTURES.

CYRUS W. FIELD, M. D.,

Assistant Bacteriologist, Research Laboratory.

In preparing toxin for the purpose of immunizing horses to tetanus it is important to obtain as strong a toxin as possible, as we will then have less volume of bouillon to inject. In preparing toxin for this purpose at the Research Laboratory of the Department of Health it has been the custom to grow the organism for nine or ten days in flasks holding about 2 liters of bouillon which has had 12 c. c. normal Na O H solution added to it after having been made neutral to litmus.

The bouillon is covered with a layer of paraffine about $\frac{1}{2}$ to $\frac{3}{4}$ inch thick. This seals it off and gives us a practical anerobic condition. For every liter of bouillon I added about 20 c. c. of an old tetanus bouillon culture, before the paraffine had hardened. In making this routine toxin I found its strength to vary greatly, one week a 1,000 of a c. c. being the M. L. D., perhaps the next a fiftieth or even a tenth. Thinking that perhaps it was the length of time for which the culture was grown, I determined to take a sample of toxin from the flask each day and test its toxicity. For this purpose, instead of using paraffine to seal off the media, alboline, which is a liquid paraffine, was used. This permitted the introduction of a pipette and so to draw off any amount of the culture without disturbing its anerobic condition.

A sample of the culture was removed each day at the same hour, a portion being titrated to determine the degree of acidity and the rest passed through a Berkefeld filter, a portion of this filtrate was also titrated and the rest was used to make up the various dilutions for injection. Tetanus toxin is such an unstable compound that one has to determine its M. L. D. by making all the possible dilutions and injecting them at the same time, as the following instance will show:

Having filtered 2 liters of culture, I tested it and found that its minimal lethal dose at that time was 1-500 of a c. c.; next day, it being needed for purposes of immunization, I tested it again before sending it to the veterinarian, and this time the M. L. D. was 1-50 of a c. c.

The titration in all this work was done with a twentieth normal Na O H solution, phenolphthalin being the indicator.

The method of determining the M. L. D. was as follows: The filtered bouillon was added to sterile water in various dilutions; for instance, on the first day 5 dilutions were made up 1 c. c. of each, containing respectively 1-10, 1-25, 1-50, 1-100 and 1-250 of a c. c. of the bouillon culture. 1 c. c. of a dilution was injected into the muscles of the hind leg of a 300-gramme guinea pig; if a pig died in four days with symptoms of tetanus poisoning he was considered to have received a fatal dose of toxin, so that the pig dying from the effect of the highest dilution was considered to indicate the minimal lethal dose of that toxin. As will be seen from the above, it requires a large number of guinea pigs to carry out the testing of a culture in this manner. To arrive at the results given in Chart I, 52 pigs were used.

In Chart I. the toxin rose to its highest point on the sixth day, its M. L. D. being then 1-100 of a c. c., the acidity of the filtered bouillon also reached its highest point on the sixth day; the acidity of the unfiltered bouillon was not tested.

In Chart II. the sample reached its highest toxicity on the second day, and its M. L. D. was 1-600 of a c. c.; in this case, for some unknown reason, the acidity of the filtered culture remained constant till the third day, when it rose a 1-10 and reached its highest point on the fourth day, being 1.2 of degrees acid.

The unfiltered toxin rose to its highest point on the second day, it being then 3 degrees acid; it then dropped rapidly and continued to drop, while the toxin remained constant till the ninth day, when it dropped slightly, and from the fourteenth to the twenty-first there was a marked drop in the M. L. D. as well as in the acidity. The M. L. D. being from the fourth day to the tenth a 1-200 of a c. c., on the fourteenth day it had dropped to a 1-100 and at the end of three weeks to a 1-25, and at the end of 28 days it was only a 1-10 of a c. c., and a week later 1 c. c. did not kill; in fact, it only caused a slight transitory stiffness of the test animal's leg.

In Chart III. the toxin reached its highest point on the eleventh day, while the unfiltered acidity had reached its height on the ninth day, and

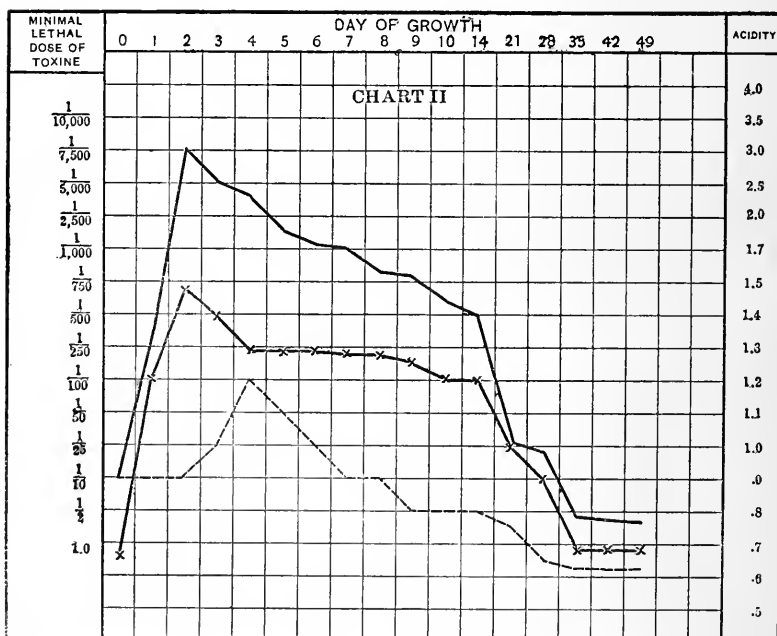
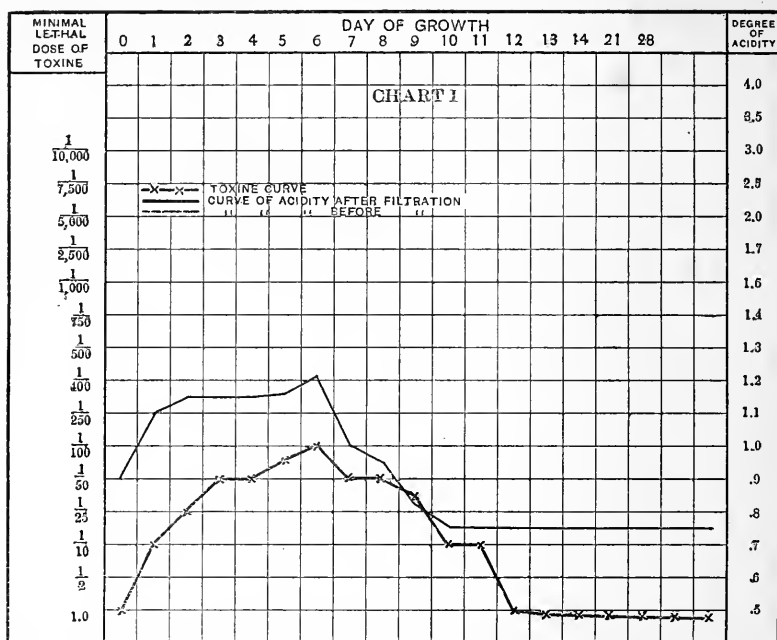
remained constant till the twelfth, when it dropped very slightly. This and the sample given in Chart IV. were the two highest toxins I obtained while carrying on this work. The filtered acidity followed the rise and fall of the M. L. D. and the acidity of the unfiltered broth, though at a much lower level. Chart IV. shows a similar condition of affairs, except that it attained its highest toxicity on the fifth day, as did also its highest unfiltered acidity, though the acidity of the filtered sample reached its highest point on the fourth day and remained constant on the fifth and then dropped.

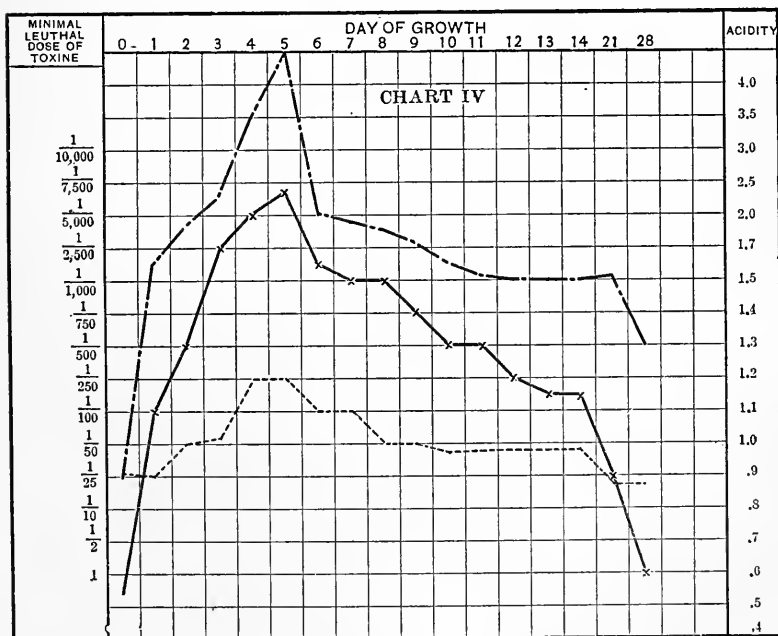
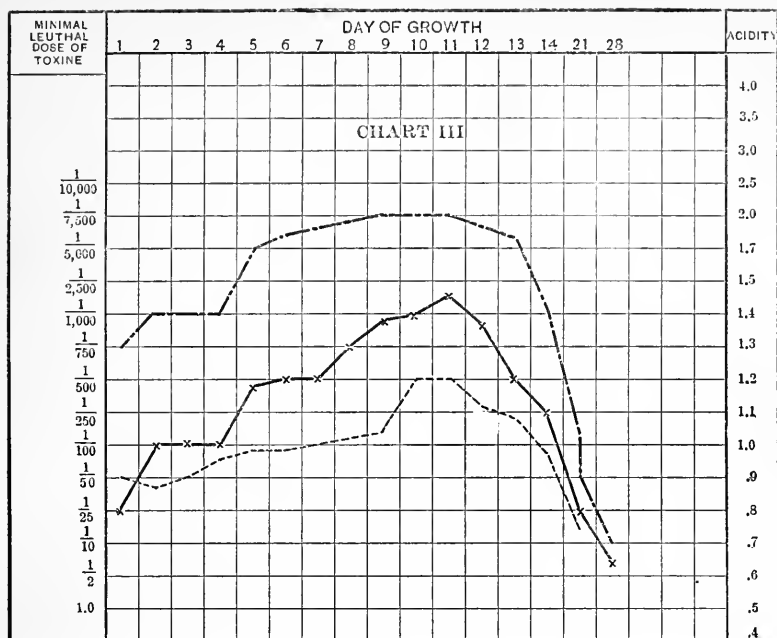
Charts V. and VI. were two samples of toxin made from the same batch of broth. In one case the toxicity reached its highest point on the sixth day, being 1-900 of a c. c.; in the other case it reached its highest point on the same day, but was only 1-750 of a c. c.; on the seventh day they both dropped. The sample shown in Chart VI. was then removed and placed in the ice-box, that shown in Chart V. was kept in the incubator. The sample placed in the ice-box only dropped to a 1-250 of a c. c. at the end of the third week; that kept in the incubator dropped to $\frac{1}{2}$ of a c. c.

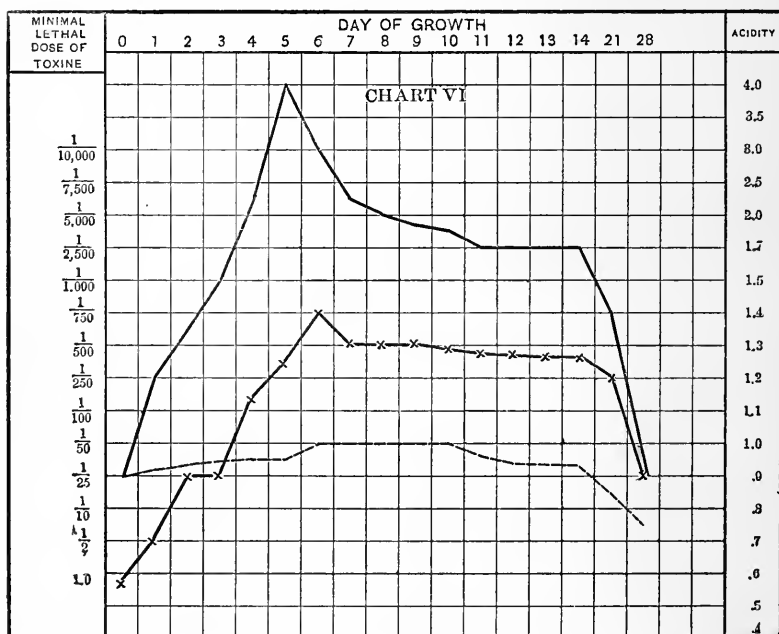
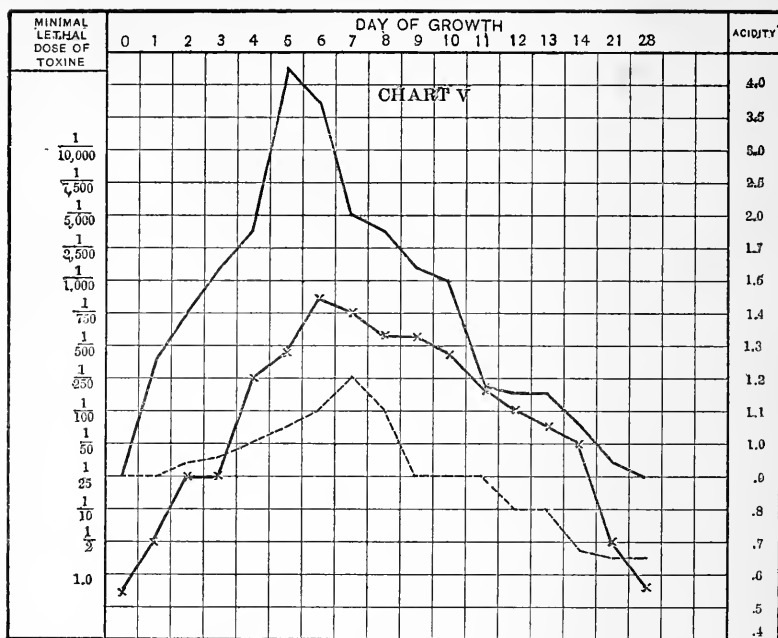
As will have been noticed from the charts, the acidity of the unfiltered sample was always much higher than that which had been drawn through the Berkefeld filter; the explanation I have for this is that the bouillon which has not been filtered contains a great amount of sulphureted hydrogen, which is one of the gases formed by the tetanus bacillus in its growth; this gas is acid in its reaction. Now, when the bouillon is drawn through the Berkefeld filter it enters a vessel from which most of the air has been exhausted and, therefore, any gases which may be held in solution are rapidly drawn out of the bouillon, and when this gas is sulphureted hydrogen, giving the bouillon an acid reaction, we will naturally have a great lessening in the degree of acidity after it has passed out. To determine whether or not this explanation would hold, I took some water which contained large quantities of sulphureted hydrogen and determined its degree of acidity; it was found to require 3 c. c. of a 1-20 normal Na O H solution to neutralize it; this was passed through a Berkefeld filter into a vessel in which the air had been exhausted and allowed to remain there five minutes, it was

again withdrawn and its acidity determined; this time only 2.2 c. c. of the same solution were required to neutralize it. Now, tetanus toxin remains in a vacuum much longer as a rule than five minutes, so it would seem to me that the high acidity in the unfiltered sample was due to the bouillon containing a large quantity of sulphureted hydrogen in solution.

My conclusions from this work are as follows: 1st. On the average the best results will be obtained if the culture be grown only six or seven days in the incubator, and after filtration be kept in the ice-box. 2d. No toxin should be used after fourteen days have elapsed from the date of inoculation. 3d. That as a rule, the degree of acidity of the unfiltered bouillon varies directly as the amount of toxin formed, but sufficient work has not been done to permit any definite statements. At some future date I intend to test the effect of the toxin before filtration, to see if it too was affected in any manner by the vacuum, and also to test the power of an old reduced toxin to neutralize tetanus antitoxin, but till the present I have not had time to do so.







THE PREVALENCE OF INFLUENZA BACILLI IN PNEUMONIC CASES.

MARY E. GOODWIN, M. D.

The large number of cases of pneumonia in the winter of 1904 caused us to examine a number of cases not only for pneumococci, but also for influenza bacilli.

One hundred and fifty-two specimens of sputum were examined for pneumococci and influenza bacilli. The clinical histories of the cases were obtained and compared with the bacteriological findings. In 143 cases of pneumonia, influenza bacilli were found in thirty-six. It is interesting to note the increased percentage of influenza bacilli with the advance of the winter.

From January 5 to February 8, we found no influenza bacilli in the sputum of 24 pneumonia patients; if present at all in these cases they must have been few in number. On February 8 and 11 we found influenza bacilli in rather large numbers in 5 out of 8 tuberculosis patients. On February 10 we found influenza bacilli in 4 out of 6 atypical pneumonias. They were present only in small numbers. On February 24 influenza bacilli were present in the sputum of 14 out of 17 pneumonia patients examined. From this time they became less frequent, and by May they were rarely found, thus from February 24 to May 11, we found influenza bacilli only 18 times in 93 specimens of sputum examined.

STUDY OF FORMALDEHYDE DISINFECTION FIRST PUT IN USE IN 1904, TOGETHER WITH THE REASON FOR ITS ADOPTION.

To 40 per cent. formaldehyde solution there is added aluminum sulphate in sufficient quantity to prevent polymerization when this is poured on quick lime.

The prepared 40 per cent. formaldehyde solution is poured on ordinary finishing lime in the proportion of one part solution and two parts lime. The result of this mixture is to liberate apparently all the formaldehyde in the solution in a very short time, *i. e.*, five or ten minutes from the time the mixture is made. With the formaldehyde there is also given off a comparatively large amount of water vapor as is evidenced by the water of condensation seen on the window pane of rooms being disinfected.

This method of disinfection fulfills the requirements of the department in that it is efficient, is easily administered, and that it takes less of the disinfectors' time than methods formerly used.

These precautions must be observed in using it:

The lime and formaldehyde solution must be mixed in the exact proportion of 2 to 1. If there is too little lime there will be polymerization of the formaldehyde, and consequently too little gas given off. The lime must be fresh and not air slacked.

The method can only be relied upon when these conditions are under constant supervision and control.

It is a fortunate thing that when polymerization takes place in the lime mixture it changes to a red color. So that in this color we have a fairly good indicator as to how much gas was given off.

Every formaldehyde mixture and every lime is tested before leaving the laboratory and if this color reaction is present, the materials are not used.

Respectfully submitted.

R. J. WILSON, M. D.,
Ass't Bact. in Charge of Disinfection.



LOUISIANA PURCHASE EXPOSITION.

INTERNATIONAL JURY OF AWARDS.

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(Commissioner General of Germany)
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WILBUR F. BOYLE,
(Appointee of National Commission)
(Second Vice-President of Superior Jury)

GEORGES GERALD,
(Commissioner General of France)
(Third Vice-President of Superior Jury).

JOHN H. McGINNIS,
(Secretary of Superior Jury)

Dear Sir:

Please find herewith a diploma of the
award conferred upon you by the Superior Jury of
Awards connected with the Louisiana Purchase
Exposition of 1904.

Very truly yours,

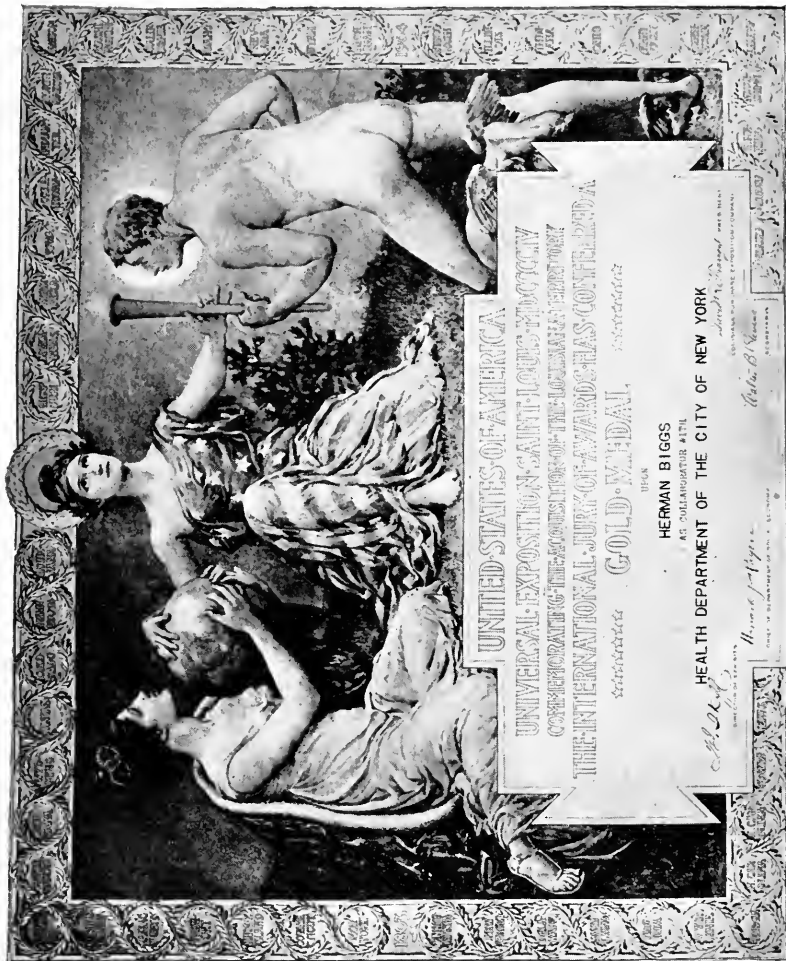
John H. McGinnis

Secretary of Superior Jury.

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UNITED STATES OF AMERICA

UNIVERSAL EXPOSITION SAINT-LOUIS 1904
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THE INTERNATIONAL JURY OF AWARDS HAS CONFERRED A

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1898

HERMAN BIGGS
 AS COLLATOR AND ARTIST

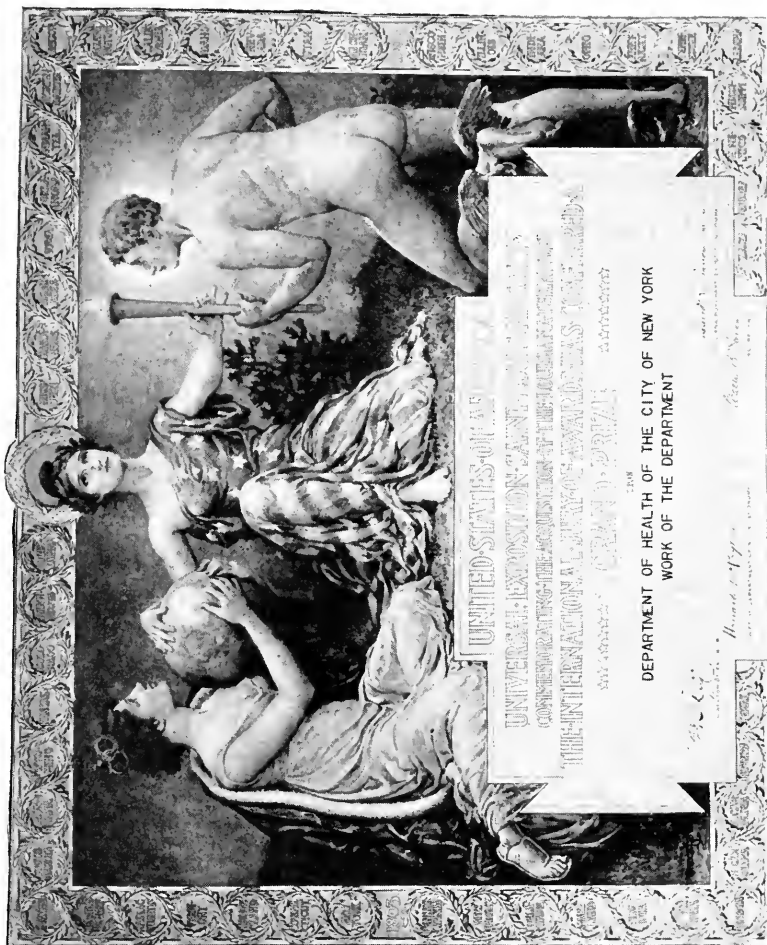
HEALTH DEPARTMENT OF THE CITY OF NEW YORK

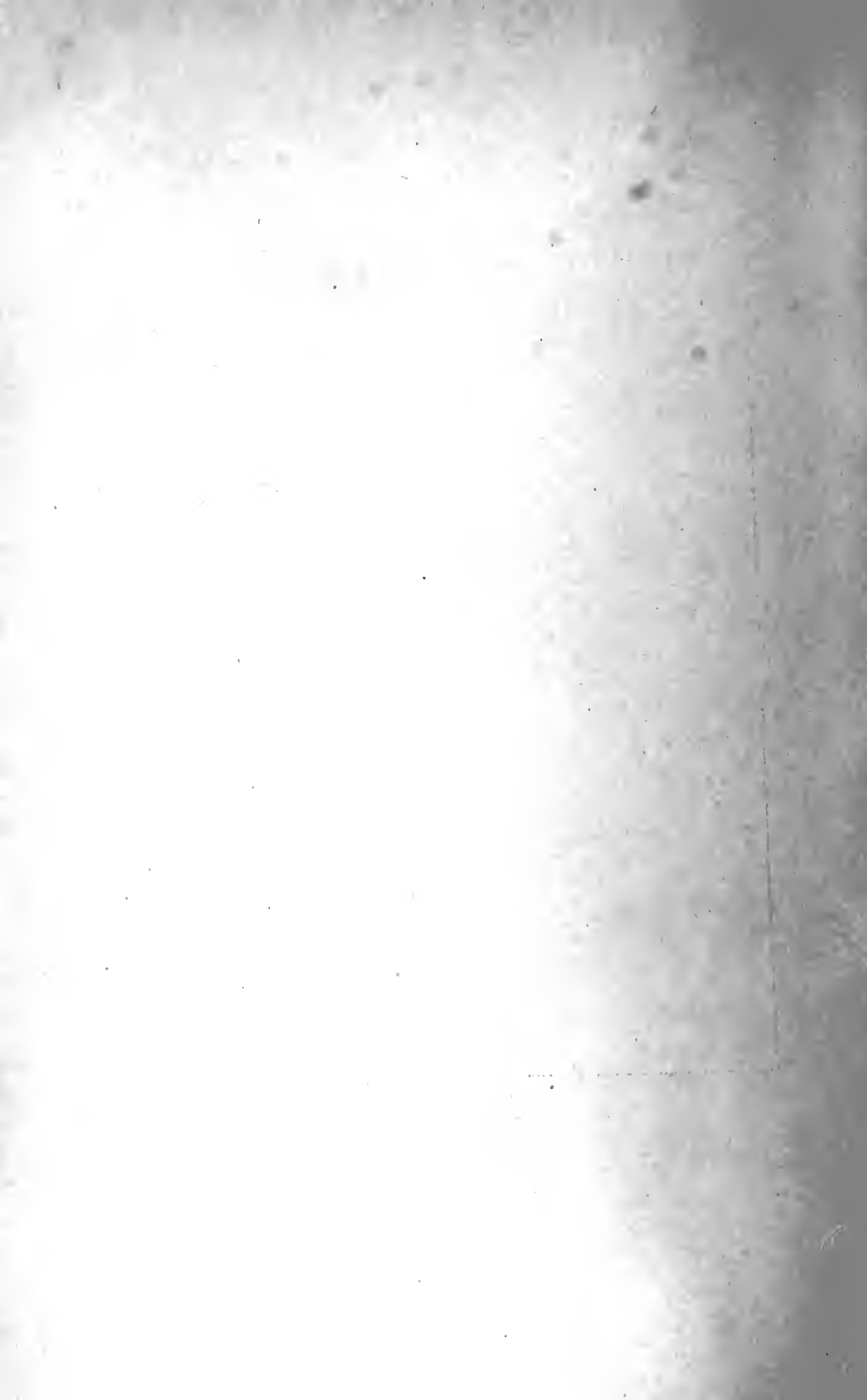
NEW YORK, N. Y., 1904

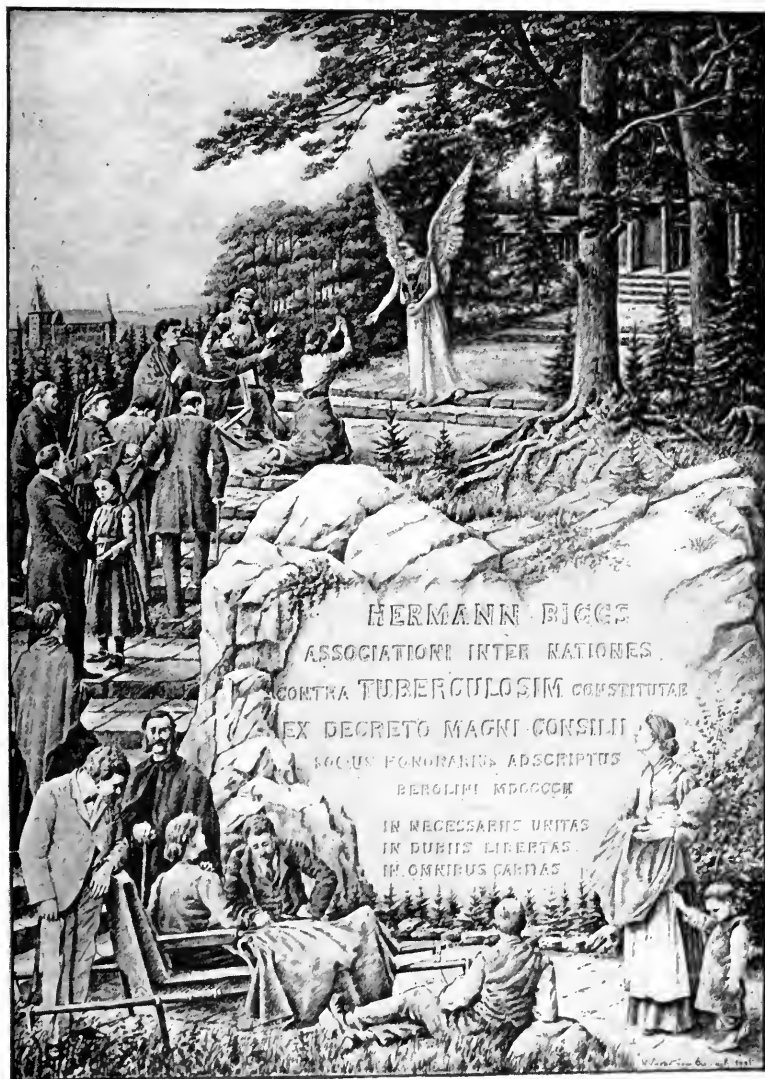
Herman Biggs

Robert B. Kline









HERMANN BIGGS
ASSOCIATIONI INTER NATIONES
CONTRA TUBERCULOSIM CONSTITUTAE
EX DECRETO MAGNI CONSILII
LOCUS HONORARIUS ADSCRIPTUS
BEROLINI MDCCCX
IN NECESSARIIS UNITAS
IN DUBIIS LIBERTAS
IN OMNIBUS CARITAS



THEATRES.

ENFORCEMENT OF ORDERS FOR THE SAFETY OF THE PUBLIC IN THEATRES.

Early in 1904 the Commissioner of Health, the Fire Commissioner and the Superintendent of Buildings were directed by the Mayor to assign representatives from their departments to form a theatre committee for the purpose of inspecting theatres and issuing orders for such changes as might be necessary to render them reasonably safe in case of fire or panic. This committee personally visited, and carefully inspected, all theatres in the Borough of Manhattan, more than fifty in number. Orders were issued where necessary, and for the most part were promptly complied with.

In one theatre, the Drammatico Nazionale, the conditions were so bad that it was deemed unwise to allow it to be used for the purposes of a theatre. It was, therefore, declared a public nuisance by the Board of Health, and permanently closed.

Seven other houses showed no disposition to comply with the orders of the committee, and were promptly closed as public nuisances. These were the Grand Opera House, the Princess, Huber's, Hurtig & Seamon's, the Vaudeville, Madison Square and the Bijou. All of these subsequently made the required and necessary changes to fully comply with all orders, and were reopened.

In making these inspections the committee considered the following matters of vital importance in the construction of theatres, for the reason that by far the larger number of fires in theatres begin on the stage or in the dressing rooms, property rooms or storerooms:

1. A complete separation of stage from auditorium by means of:
 - (a) Properly constructed proscenium wall.
 - (b) A reduction of the number of openings in the proscenium wall to those actually permitted by the existing laws.
 - (c) Fireproof automatic doors on all openings in proscenium wall.
 - (d) An automatic fireproof curtain over the proscenium arch.

2. Provision for a strong draft to carry the products of combustion in case of fire, through the roof over the stage instead of into the auditorium, by means of properly working automatic, glass skylights over the stage.

3. An effective sprinkler system over the stage, dressing rooms, property rooms, carpenter shops, etc.

4. A properly placed and constructed standpipe system, with the necessary hose and connections, and outside connections for the Fire Department.

5. The separation of dressing rooms, property rooms and scenery storerooms from the stage by fireproof walls with automatic fireproof doors on the necessary openings.

6. The storage of scenery or any other inflammable material in other places than in the fly galleries, rigging loft, on or under the stage.

7. The treating of all scenery so as to render it non-inflammable.

8. The providing of suitable and sufficient fire extinguishers, water casks, pails, axes and fire hooks, at proper places in the theatre.

9. The employment of proper and safe methods of heating, and the placing of heating apparatus in such situations as not to endanger the safety of the audience.

In addition to the above, the following matters were deemed of vital importance from the standpoint of panic, whether such panic be produced by fire or any other cause:

1. EXITS.

(a) Sufficient in number and properly located at different points in the auditorium.

(b) Doors of exits to open outwardly, and to be provided with such simple fastenings as might be easily undone at any time from the inside.

(c) To be properly indicated by exit signs, numbers and red lights. diagrams on the programs to be provided, to indicate sharply and clearly the situation of exits and the points of safety to which they lead. Exit lights, if electric, to be on a separate circuit.

(d) All passageways from exits to lead to the street or ground, or other places of safety.

(e) The removal of obstructing curtains, doors, railings, etc., from exits and from the passageways leading therefrom.

(f) The proper lighting during the performance of courts, stairways and other passageways leading from exits. If by electricity, the lights to be on a separate circuit.

2.—SEATING OF AUDIENCE.

The arrangement of seats and aisles to conform to the Building Code, so that there might be no obstruction to the passage of the audience between and through the same, and to prevent overcrowding.

Orders were issued on practically every theatre in the Borough of Manhattan, requiring more or less extensive changes. These orders were issued by the committee through one of its members, the chief engineer of the Bureau of Buildings, and in substance were as follows:

Drammatico Nazionale.

Order issued by Bureau of Buildings to discontinue.

Harlem Opera House.

Discontinue the use of all dressing rooms under the stage.

A new asbestos curtain, satisfactory to the Bureau of Buildings, must be provided.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All draperies, curtains and other hangings must be removed from in front of the exits.

Academy of Music.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily

opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All windows forming exits should be converted into doors with proper openings and fastenings, and satisfactory steps leading to the same.

Remove rubbish in alley on the north side of the building and under the auditorium.

Discontinue the use of the space in the fly galleries, on the stage and under the stage and auditorium for the storage of inflammable materials.

Discontinue the use of gas under the stage.

Side court must be properly lighted.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Reset and refit all fireproof doors wherever placed.

Opening in proscenium wall must be provided with fireproof door.

Skylight ropes must be carried to the stage and properly marked.

Remove benches in top gallery and replace with chairs properly spaced and arranged.

Discontinue the use of the seats above the exits in the top gallery.

Discontinue the use of gas in the building.

Provide 4-inch stand-pipes, supplied by tank and pump, with 2½-inch outlets and hose on each floor at front of house and on the stage, as required by the Fire Department.

Portable fire appliances must be placed, as required by the Fire Department.

All draperies, curtains and other hangings must be removed from in front of exits.

Rearrange the seats throughout all tiers of the auditorium so that there will be not more than six seats intervening between any one seat

and an aisle, and so that the aisles will all remain of the widths required by the Building Code.

A new asbestos curtain must be provided, properly hung, and running at least six inches in metal grooves, which grooves must be secured to the proscenium wall.

Irving Place Theatre.

Discontinue the use of gas on the stage and under the stage.

All doors from the theatre must be made to open outwardly and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Discontinue the use of space under the stage for the storage of scenery.

All openings in the proscenium wall must be provided with fire-proof doors.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall not have more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Partitions, shelves and doors of dressing rooms must be covered with metal or made of non-inflammable materials.

Discontinue the floor registers on the stage and in the auditorium.

Properly ventilate space under stage.

Close openings in rear of stage floor.

All draperies, curtains and other hangings must be removed from in front of exits.

Grand Theatre.

Discontinue the use of the dressing rooms under the stage.

Remove door from side court, and wood roof over court.

Discontinue the use of gas on the stage.

All draperies, curtains and other hangings must be removed from in front of exits.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily

opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All exits must be properly marked by letters and numbers and lighted by red lights.

Diagrams on programs must be made to show the exact location of the exits actually in use, and the points to which each exit leads.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Provide automatic fireproof doors on all openings in the proscenium wall. Stage arc lamps must be equipped with approved covers around resistance coils, to prevent the possibility of accidental contact with the live current carrying parts.

Switches on arc lamps must be of an approved type, and, together with the lamps, must be properly inclosed.

Lamps must be provided with approved metal hoods, to prevent the possibility of burning particles of carbon falling to the floor.

Live current carrying parts of lamps must be so constructed as to prevent them from coming in contact with the hood of the lamps.

The use of the space on and underneath the stage for the storage of scenery, costumes, property or other materials, must be discontinued.

All dressing rooms must be separated from the stage by a fire wall. All openings in said fire wall must be provided with automatic fire-proof doors.

The court on the south side of the theatre must be immediately cleared of all obstructions; nor shall such material be allowed to collect therein in the future.

Benches in the gallery must be removed and replaced by chairs fixed to the floor, not less than 32 inches from back to back, and having not more than six chairs between any one chair and an aisle on either side, and the aisles must have the width required by the Building Code; or else the benches now in position in the gallery must be provided with suitable separating arms, so that not more than six seats shall intervene between any one seat and an aisle on either side.

The middle aisle of the gallery and orchestra floors must be altered to conform with the provisions of the Building Code.

The seats of the orchestra floor must be rearranged so as to have not less than 32 inches between seats from back to back.

Repair the corrugated roof over the outside stairways, so as to prevent leakage of storm water on said stairways.

Remove from all outside stairways all accumulations of ice and snow forthwith.

Murray Hill Theatre.

All obstructions must be removed from alleyways.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Remove iron bars from across windows in dressing rooms.

Discontinue the use of the passageway from the dressing rooms to the street, for the storage of scenery, and keep said passageway free and unobstructed at all times.

Discontinue the use of gas on stage.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Discontinue the use of space under stage for the storage of rubbish.

Asbestos curtain must be arranged so as to be operated from the stage.

Ropes for the automatic skylight must be carried to the stage, and properly marked.

Automatic fireproof door must be provided for north dressing rooms.

All draperies, curtains and other hangings must be removed from in front of exits.

Make asbestos curtain automatic, and provide head chains, properly secured to the proscenium wall.

Iron bars must be removed from windows of lower dressing rooms.

Daly's Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required by the Bureau of Buildings, must be provided.

Reduce the seating capacity of the top gallery to one hundred until proper exits are provided.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All openings in the proscenium wall must be provided with automatic fireproof doors.

Present stand-pipes should be replaced by new stand-pipes with hose attached, in accordance with the requirements of the Fire Department.

Sprinkler system must be provided.

Discontinue the storage of scenery under the stage and auditorium.

The seats in the gallery must be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side; and the aisles must be of the widths required by the Building Code.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under the automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal or made of incombustible materials.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the exact location of exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

Belasco Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings which are readily opened at any and all times, and which are uniform throughout the building, and no fasteners which require the use of keys will be permitted.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be provided under the automatic skylights.

Boxes extending into the courts must be removed.

Radiators must be removed from dressing rooms.

Stoves must be removed from property room.

Stand-pipes must be provided on both sides of stage, with outlets under stage, on stage, on dressing room landings and fly galleries, in connection with the tank on roof and pump in cellar, as required by the Fire Department.

All draperies, curtains and other hangings must be removed from in front of exists.

New Lyceum Theatre.

All doors from the theatre must be made to open outwardly and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Skylight rope must be carried to the stage.

Exit signs should be eight (8) inches high.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by letters and numbers, and by red lights placed over the exits.

Diagrams on programs must be made to show the proper location of exits, with the numbers corresponding to those over the exits; and must indicate the points to which each exit leads.

Diagrams on each tier, exclusive of the stage, must contain fifteen square inches.

New Amsterdam Theatre.

Rope, operating automatic skylight, must be properly marked.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All draperies, curtains and other hangings must be removed from in front of exits.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Orpheum Music Hall.

Main exits to orchestra floor must be cleared of all obstructions and widened.

Rearrange the tables on the balcony floor, so as not to obstruct the passageways at the rear of said floor.

Additional exits for the balcony must be provided.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of exits actually in use, and the points to which each exit leads.

Fireproof door at the east side of stage must be made automatic.

Replace wooden floor over boiler room by a fireproof floor.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

Skylight over stage must be made automatic, and ropes operating same must be carried to the stage and must be properly marked.

All draperies, curtains and other hangings must be removed from in front of exits.

Border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Sprinkler system must be provided.

Exit from fly gallery to the present fire-escapes at the rear must be provided.

The doors in the proscenium wall must be made to work automatically and freely.

All exit doors must be made to open outwardly and readily.

They must be provided with fasteners on the inside which are readily opened at any and all times; fasteners which require the use of keys will not be permitted.

All obstructions must be removed from the exits, and the said exits and passageways must be kept free from obstructions at all times.

All fire escapes and outside stairways must be immediately cleared of all accumulations of ice and snow, and all doors and windows opening upon said fire escapes and stairways must be kept in such condition as to permit of their ready use as a means of escape.

The storage of scenery and other obstructions on the stage, in front of water casks, automatic skylight ropes and the drop ropes of the asbestos curtain will not be permitted.

The rope from automatic skylights and from the asbestos curtain must lead to the stage and be properly marked.

The seats in the balcony must be rearranged so as to be not less than 32 inches from back to back, and have not more than six chairs between any one chair and an aisle on either side, and the aisles must be of the width required by the Building Code.

Criterion Theatre.

Step in front of exit 3 must be cut down to the floor level.

Windows from dressing rooms must be kept free and unobstructed at all times.

Remove metal window sash frames from toilet rooms communicating with dressing rooms and leading to fire-escapes, and provide proper openings to said fire-escapes.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All exits must be properly marked by letters and numbers and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All draperies, curtains and other hangings must be removed from in front of exits.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the house; and no fastenings which require the use of keys will be permitted.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

The main switchboard for the street wires must be placed in a properly made and lined box.

All panel and cut-out boxes throughout the building must be properly covered.

All cables under and alongside the stage must be properly supported on approved insulators.

All cables, at points where they pass through walls, must be properly supported and insulated.

All feeders must be properly supported on approved insulators.

The flexible cord, on which lights are operated on one side of stage and in the dressing rooms, must be replaced by suitable wires, properly insulated and supported.

All open wires and wires in molding must be properly covered. The new border light fuse-box must be lined and covered. The border and stage light cables must be properly supported.

All fuses throughout the building must be properly covered.

All defects in the main switchboard must be corrected.

The open wiring in the foyer must be properly insulated and inclosed; the open wires in the water closet apartments and passageway to the balcony floor must be placed in pipes.

The electric plant must be in charge of a competent electrician at all times.

Tony Pastor's.

Discontinue the use of gas underneath the stage.

Discontinue the use of the space under the stage for the storage of scenery and other materials.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

A fireproof, automatic skylight must be provided over the stage.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors in dressing rooms must be covered with metal, or made of non-inflammable materials.

All draperies, curtains and other hangings must be removed from in front of exits.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Grand Opera House.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the

building; and no fasteners which require the use of keys will be permitted.

Replace windows forming exits 16 and 17 from the balcony, and exit 24 at the orchestra floor, with proper doors.

All obstructions must be removed from alley leading from fire-escapes on north side of building.

Construct doors of exits 2, 3, 4 and 5 at gallery floor, so ~~that~~ they may be readily opened from the inside.

Remove wooden benches and replace the same by chairs, properly spaced and arranged.

Remove all small automatic chairs placed at the ends of rows of seats.

Asbestos curtain must be made to run in iron grooves.

Doors in proscenium openings and scenery storerooms must be made fireproof and automatic.

Asbestos curtain must be made to drop automatically.

Skylight ropes must be carried to stage, and must be properly marked.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Discontinue the use of space under the stage for storage purposes.

Discontinue the use of the dressing rooms under the stage.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All draperies, curtains and other hangings must be removed from in front of exits.

Automatic sprinkler must be provided.

Fourteenth Street Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Discontinue the use of gas under the stage.

Discontinue the use of the space under the stage for the storage of scenery.

Frame of door leading from stage to proscenium must be made fireproof.

Dressing rooms must be separated from the stage by a fire wall with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Remove wooden benches in top gallery and replace same by chairs, properly spaced and arranged.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Portable fire appliances must be placed as required by the Fire Department.

Skylight rope must be properly marked.

All draperies, curtains and hangings must be removed from in front of exits.

Sprinkler system must be installed.

All openings in proscenium wall must be provided with automatic fireproof doors.

Border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Victoria Theatre.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Aisles should be placed at the sides of the orchestra, front part of auditorium.

Dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Other means of exit than the stage must be provided for the dressing rooms.

All draperies, curtains and other hangings must be removed from in front of exits.

The asbestos curtain must be hung so as to work automatically, and to extend not less than 6 inches into the grooves at either side.

Automatic skylights must be provided over the stage, and the operating ropes for the same must be carried to the stage level and be properly marked.

All openings in the proscenium wall between the stage and the auditorium must be provided with automatic fireproof doors.

All seats on the orchestra floor must be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six (6) seats between any one seat and an aisle on either side, and the aisles must be of the widths required by the Building Code.

The seats on the first balcony must be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six (6) seats between any one seat and an aisle on either side, and the aisles must be of the width required by the Building Code. Those seats on the top row, over which there is not sufficient head room, must be removed.

The open space in the rear of the balcony must be cleared of all chairs, tables and other obstructions.

The aisles in the gallery must be rearranged so as to conform with the provisions of the Building Code.

The doors of openings in fire wall, between the stage and dressing rooms must be properly hung.

The use of the fly gallery as a place for storage must be discontinued.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by signs and numbers, and lighted by red lights.

Windsor Theatre.

Discontinue the use of gas on the stage.

Remove the wooden benches in the gallery, and replace same by chairs, properly spaced and arranged.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Skylight ropes must be carried to the stage and must be properly marked.

Discontinue the use of the space under the stage for the storage of scenery and other materials.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Dressing rooms under stage must be discontinued.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

All draperies, curtains and other hangings must be removed from in front of exits.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Sprinkler system must be provided.

New York Theatre.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Discontinue the use of the space under the stage for the storage of scenery, lumber, etc.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All draperies, curtains and other hangings must be removed from in front of exits.

All woodwork around main switchboards and rheostat banks must be removed.

Non-combustible platforms must be installed on a level with each bank of rheostats.

A suitable non-combustible platform must be installed in rear of switchboard, making the board readily accessible; the practice of walking in the feeders must be discontinued.

All subdistribution boxes must be made to conform strictly to the standard required for theatres.

All flexible pendant must be removed.

All flexible cables leading to border lights must be covered with an absolutely fireproof material.

Knickerbocker Theatre.

Iron gratings from lower dressing room windows must be removed.

All doors must be made to close properly, and be kept free and clear of all obstructions.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Discontinue the use of the space under stage for the storage of old programs, etc.

The asbestos curtain should be made to run in grooves.

All draperies, curtains and other hangings must be removed from in front of exits.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Manhattan Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fastenings which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage is fireproof.

Additional exits, as required, must be provided, and such changes as necessary to safeguard the public must be made in the present fire-escapes.

Sprinkler system must be provided.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

Close up hole in ceiling now used for ventilating purposes, and put in proper ventilating pipes.

Provide red lights over all exits on an independent circuit.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All draperies, curtains and other hangings must be removed from in front of exits.

Proper fire escapes must be provided from the dressing rooms other than across the stage.

Dewey Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Exits must be provided at the south end of the building from the orchestra floor. Additional exits must be provided from the balcony and gallery, fireproof in construction, and of the width required by the Building Code.

Sprinkler system must be provided.

Discontinue and remove the seats of the eight back rows of the top gallery until the proper exits are provided.

Wire nets must be placed under automatic skylights.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

New Star Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Remove wooden benches, and replace by chairs, properly spaced and arranged.

Boiler room under lobby must be removed.

Remove small doors and small openings at main entrance, and replace same by large doors opening outwardly.

Proper fire-escapes must be provided from dressing rooms on the north side of the stage.

Use of the cellar must be discontinued for the storage of scenery and stage property.

Obstructions between exit 28 and the street must be removed.

Rope operating automatic skylights must be properly marked.

All draperies, curtains and other hangings must be removed from in front of exits.

Wallack's Theatre.

Additional exits as required must be provided.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Rope from automatic skylight must be properly marked.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All draperies, curtains and other hangings must be removed from in front of exits.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Sprinkler system must be provided.

The seats in the gallery must be rearranged so that they shall be not less than thirty-two (32) inches from back to back, and shall have not more than six (6) seats intervening between any one seat and aisle on either side; and the aisles must be of the widths required by the Building Code.

Risers of the steps in the aisles shall be altered and changed so that none of them shall exceed $7\frac{1}{2}$ inches in height, and so that the treads, including all nosings, be not less than $10\frac{1}{2}$ inches wide in straight stairs.

A diagram or plan of the gallery, showing distinctly the exits therefrom, each occupying a space not less than 15 square inches, shall be provided in black lines in a legible manner, on the program of the performances.

Garden Theatre.

Dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall, unless the stage floor is fireproof.

The present fire-escapes must be so extended as to take in all tiers. Frame dressing rooms must be removed from the stage.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Automatic skylight rope must be properly marked.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Discontinue the use of the space under the stage for storage purposes.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six (6) seats

intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Discontinue the use of the gas on the stage.

All draperies, curtains and other hangings must be removed from in front of exits.

Garrick Theatre.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Remove all obstructions from alleyways.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Asbestos curtain must be made to run in grooves.

Skylight ropes must be properly marked.

Discontinue use of fly gallery for storage of scenery.

All curtains, draperies and other hangings must be removed from in front of exits.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

Automatic skylights must be so arranged as to work automatically and readily at all times.

All scenery, costumes, rubbish and unnecessary materials must be removed from the loft over the auditorium.

The seats in the gallery must be rearranged so that they shall be not less than thirty-two (32) inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side; and the aisles must be of the widths required by the Building Code.

Risers of the steps in the aisles shall be altered and changed so that none of them shall exceed $7\frac{1}{2}$ inches in height, and so that the treads enclosing all nosing be not less than $10\frac{1}{2}$ inches wide in straight stairs.

Savoy Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided, and such changes as necessary to safeguard the public must be made in the present fire-escapes.

Skylights over stage must be arranged to operate automatically; ropes for same must continue to the stage.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Fire appliances must be overhauled and placed where required by the Fire Department.

Paint room from under stage must be removed.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All curtains, draperies and other hangings must be removed from in front of exits.

Herald Square Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided, and such changes as necessary to safeguard the public must be made in the present fire-escapes.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All draperies, curtains and other hangings must be removed from in front of exits.

Automatic sprinkler system must be provided.

Circle Theatre.

Additional exits must be provided from the balcony.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

Sprinkler system must be provided.

Provide fireproof doors between stage and dressing rooms.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Automatic skylights over the stage must be provided.

Wire nets must be provided under automatic skylights.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Discontinue the use of the space under stage for the storage of scenery and other materials.

Provide fireproof doors on all openings in proscenium wall.

Shelves, partitions and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All draperies, curtains and other hangings must be removed from in front of exits.

Diagrams on programs must be made to show the proper location of the exits actually in use and the points to which each exit leads, and must be of the size required by the Building Code.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

A brick proscenium wall must be built.

Dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Openings in the proscenium wall above the stage level must be closed up.

Metropolitan Opera House.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All draperies, curtains and other hangings must be removed from in front of exits.

Thalia Theatre.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Storeroom in cellar must be discontinued.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Skylight ropes must be properly marked.

Provide additional exits from the balcony and gallery.

Remove all wooden benches and replace the same by chairs, properly spaced and arranged.

Reduce the seating capacity of the top gallery to three hundred.

Change exit 14 from balcony to Atlantic Garden, which has a defective door.

All draperies, curtains and other hangings must be removed from in front of exits.

All the skylight ropes must be brought to one point on the stage, which point must be kept unobstructed at all times. A sign at least eighteen inches square, marking the ropes, must be provided, and a knife provided for cutting these ropes.

That the seats be rearranged so that they shall be not less than thirty-two inches from back to back; that not more than six seats intervene between any one seat and an aisle on either side, and that the widths of the aisles be made to conform to the requirements of the Building Code.

That all exit doors be made to open outwardly, and be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the building; fastenings which require the use of keys from the inside will not be permitted.

That an automatic asbestos curtain, properly hung and running on iron sheaves and in iron grooves be provided.

That all lawful openings in the proscenium walls, and all openings between the scenery, property and dressing rooms and the stage be provided with suitable automatic fireproof doors.

That automatic skylights be provided over the stage, and that wire nets be placed beneath them; that the skylight ropes be carried to the stage level, and that they be properly marked (see section 109 of the Building Code).

That the use of gas in the auditorium and under the stage be discontinued.

That the use of gas in the dressing rooms be discontinued, or that the size of the jets be so reduced and the jets be so protected as to preclude the danger of fire.

That the storage of scenery, costumes and other inflammable material on and under the stage be discontinued.

That the bill room beneath the lobby be removed, and that a proper bill room, provided with fireproof walls, ceilings and doors be substituted therefor.

That an adequate tank, properly connected with automatic sprinkler system, be provided. This tank and its connections must be installed to the satisfaction of the Fire Department.

Bijou Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fastenings which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All curtains, draperies and other hangings must be removed from in front of exits.

Sprinkler system must be provided.

Weber and Fields'.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Skylights over the stage must be made automatic.

Remove the last two rows of seats in the top gallery.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side; and so that the aisles will have the widths required by the Building Code.

Fireproof doors must be provided on all openings in the proscenium wall.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

Storage and property room in flies and rigging loft must be removed.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and number, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All draperies, curtains and other hangings must be removed from in front of exits.

Sprinkler system must be provided.

Hudson Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Keith's Theatre.

Location of portable fire appliances must be changed, as required by the Fire Department.

Remove the wooden benches and replace same by chairs, properly spaced and arranged.

Doors on the stairs to the balcony must be removed.

All draperies, curtains and other hangings must be removed from in front of exits.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

The entire front, at the orchestra floor, should be converted into doors opening outwardly.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Skylight ropes must be brought to "prompt" side of stage, and a sign at least 18 inches by 18 inches provided, to read: "Skylight line—In case of fire, cut rope."

Sign 18 inches by 18 inches must be provided near asbestos curtain rope, to read: "Asbestos curtain—In case of fire, cut rope."

Picture frames in lobby front must be removed. Lobby must be kept clear at all times.

All seats in the auditorium, except those contained in boxes, shall be not less than thirty-two (32) inches from back to back, measured in a horizontal direction; and then must be firmly secured to the floor.

No seat in the auditorium shall have more than six seats intervening between it and an aisle on either side. The aisles must be of the widths required by section 109 of the Building Code.

Vaudeville Theatre.

Automatic skylights must be provided over stage, and rope for same must be carried to stage level, and be properly marked.

Asbestos curtain must be made to drop automatically.

Discontinue the use of space under stage for the storage of scenery.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Sprinkler system must be provided.

Brick proscenium wall must be built.

Dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

All draperies, curtains and other hangings must be removed from in front of exits.

American Theatre.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Discontinue the use of the space under the stage for the storage of scenery and stage property.

Discontinue the use of the space in the passageway to exit 4 in the gallery for the storage of scenery.

Replace the wooden benches in the gallery with chairs, properly spaced and arranged.

Discontinue the use of the six rear rows of seats in the gallery until proper exits are provided.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Automatic skylights must be operated by means of one rope or a series of ropes coming to one point, and said rope or ropes must be carried to the stage, and properly marked.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

Remove large box from court which forms an obstruction.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All border lights must be hung by means of wire cable or metal chains, as required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of exits.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

The six rear rows of seats in the gallery must be removed forthwith.

Broadway Theatre.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Provide means of escape from the dressing rooms other than across the stage.

Replace wooden stairway on south side of stage leading from stage to dressing rooms by an iron stairway.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Iron supports of fire escapes on the south side of the building, which interfere with the opening of the iron doors to the exits, should be so arranged as not to interfere with the opening of said doors to said exits.

Discontinue use of dressing rooms in cellar.

Remove two rear rows of seats in gallery.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Discontinue the use of the space under the stage, in the basement, for the storage of scenery and other materials.

A new asbestos curtain, satisfactory to the Bureau of Buildings, should be provided.

Automatic skylights must be put in satisfactory condition.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of exits.

Automatic fireproof doors must be provided on the openings in the proscenium wall under the stage.

The skylight line must be brought to the stage level and properly marked.

Empire Theatre.

All draperies, curtains and other hangings must be removed from in front of the exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Remove the iron grating from the windows of the lower dressing rooms.

Proper means of escape must be provided from the dressing rooms on the south side of the stage.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Discontinue the use of the space under the stage for the storage of boxes, etc.

Asbestos curtain should be made to run in steel grooves.

Majestic Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fasteners on the inside, which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Rope from the automatic skylight must be put in some accessible place, and properly marked.

Benches in the gallery must be removed and replaced by chairs, properly spaced and arranged.

All draperies, curtains and other hangings must be removed from in front of the exits. All stage scenery, curtains and decorations made of combustible material, and all woodwork on or about the stage shall be painted or saturated with some non-combustible material or otherwise rendered safe against fire.

Third Avenue Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Take out the seven back rows of seats in the top gallery, and remove all benches and replace same by chairs, properly spaced and arranged.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Discontinue the use of the stage and the space under the stage and the fly galleries for the storage of scenery and other inflammable materials.

Provide additional stand-pipe with hose, in accordance with the requirements of the Fire Department.

Remove the iron gratings on the windows in the front of the building.

Provide additional fire extinguishers, as required by the Fire Department.

Sprinkler system must extend to the cellar.

Replace present wooden stairway leading from the stage to the cellar by a new iron stairway.

Steps in the side aisles of the top gallery must be so reconstructed as to make the treads and risers at right angles, and hand rails must be provided along the walls.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All draperies, curtains and other hangings must be removed from in front of exits.

Huber's Museum and Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

A brick proscenium must be built.

A fireproof, automatic skylight must be provided over the stage.

Remove obstructions to all exits, fire-escapes, doorways, passageways, etc.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Partitions, shelves and doors of dressing rooms must be covered with metal or made of incombustible materials.

Wire nets must be placed under the automatic skylights.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

All draperies, curtains and other hangings must be removed from in front of exits.

Hurtig & Seamon's Music Hall.

All draperies, curtains and other hangings must be removed from in front of the exits.

All doors from the theatres must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

A new asbestos curtain, as approved by the Bureau of Buildings, must be provided.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Additional stand-pipes with the necessary hose must be provided, in accordance with the requirements of the Fire Department.

Sprinkler system must be provided.

Provide proper means of escape from dressing rooms.

Wood in rigging loft must be covered with metal, or rigging loft must be built of iron.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Proctor's Twenty-third Street Theatre.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the house, and no fasteners which require the use of keys will be permitted.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Discontinue the use of space under the stage for the storage of lumber, scenery, or other materials.

Remove wooden benches from the upper gallery and replace with chairs, properly spaced and arranged.

Remove the chain which is stretched across the bottom of easterly stairs leading from balcony to lobby.

All draperies, curtains and other hangings must be removed from in front of exits.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

The box office must be removed from the lobby.

Proctor's Fifty-eighth Street Theatre.

Asbestos curtains must be made to drop automatically.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Remove railings obstructing orchestra exit.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Remove three (3) rows of wooden benches in the gallery.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be provided under automatic skylight.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of non-inflammable materials.

Wire screens must be removed from the dressing room windows on the west side.

All draperies, curtains and other hangings must be removed from in front of the exits.

Provide automatic fireproof door on opening from stage to stage entrance from Fifty-eighth street.

All stage scenery, curtains and decorations made of combustible materials, and all woodwork on or about the stage, shall be painted or saturated with some non-combustible material, or otherwise rendered safe against fire.

Proctor's One Hundred and Twenty-fifth Street Theatre.

All exits must be properly marked by letters and numbers, and lighted by red lights.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Box office which obstructs the lobby must be removed.

Remove the wooden benches in the gallery, and replace by chairs, properly spaced and arranged.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Platforms back of seats in top gallery must be removed.

Rope operating automatic skylight must be properly marked.

Automatic fireproof door must be provided between dressing rooms and stage.

All draperies, curtains and other hangings must be removed from in front of exits.

Proctor's Fifth Avenue Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads.

Remove lock from door of exit from orchestra to court.

Provide an additional exit from the gallery on the south side.

Discontinue the use of space under stage for the storage of scenery, and also the space at the rear of the stage.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of exits.

The box office must be removed from the lobby.

Miner's Bowery Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms

placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required by the Bureau of Buildings, must be provided.

Remove the boilers and heating apparatus from under the stage.

Remove all obstructions from rear exit to stage.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Reduce the seating capacity of the top gallery to two hundred (200) until proper exits are provided, and replace the benches in the top gallery by chairs, properly spaced and arranged.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, so that the aisles will have the widths required by the Building Code.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

Miner's Eighth Avenue Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Remove two rear rows of seats in balcony.

Take out three rows of seats in the top gallery until additional exits are provided.

Additional exits, as required, must be provided.

Take out and remove gas fixtures from border lights.

Automatic skylights should be operated from one rope, or a series of ropes, and same should be carried to the stage and properly marked.

Discontinue the use of gas in room off stage.

All doors from stage to auditorium and stage to dressing room should be kept free and unobstructed.

Remove all draperies, curtains and other hangings from in front of exits.

Close up permanently opening in proscenium wall, at fly gallery, and provide other means of reaching fly gallery.

Discontinue the use of dressing rooms under the stage.

Passageway from stage to street, on Twenty-sixth street side, must remain free and unobstructed.

Remove wooden benches, and replace same by chairs, properly spaced and arranged.

People's Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fasteners on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Skylights over stage must be made automatic.

Box office must be removed from the lobby.

Discontinue the use of the space under the stage and alongside of the stage for the storage of scenery.

All border lights must be hung by wire cables or metal chains, as required by the Building Code.

All openings in the proscenium wall must be provided with fireproof doors.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Reduce the seating capacity of the top gallery to two hundred (200) until proper exits are provided, and replace the benches in the top gallery with chairs, properly spaced and arranged.

Reduce the seating capacity of the balcony to two hundred (200) until proper exits are provided, and replace the benches in the gallery with chairs, properly spaced and arranged.

Seats should be rearranged so that they shall be not less than thirty-two (32) inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

Madison Square Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Boilers under the auditorium must be removed.

Sprinkler system must be provided, and such other fire appliances as required by the Fire Department.

Replace stand-pipes and hose now in use by such as are satisfactory to the Fire Department.

Wood in rigging loft must be covered by metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of exits actually in use, and the points to which each exit leads.

All draperies, curtains and other hangings must be removed from in front of exits.

Casino.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

All long runs of the fire-escape stairs should be broken by platforms with proper landings.

All border lights must be hung on wire cables or metal chains, as required by the Building Code.

Seats should be rearranged so that they shall be not less than thirty-two inches from back to back, and shall have not more than six (6)

seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Remove the railing from the exit in the promenade floor.

Place red lights indicating exits directly over the same, and mark exits by letters of proper size.

Additional exits must be provided, as required by the Bureau of Buildings.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of exits.

That appropriate automatic skylights be provided forthwith over the stage, in accordance with section 109 of the Building Code.

Lyric Theatre.

Provide all exits with fastenings similar to those on doors leading to Forty-third street.

Discontinue the use of the space under the stage for the storage of scenery.

Diagrams for galleries must be provided on programs.

All draperies, curtains and other hangings must be removed from in front of the exits.

Princess Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times, and no fasteners which require the use of keys will be permitted.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided.

Sprinkler system must be extended to cover dressing rooms.

Provide two (2) stand-pipes in the auditorium, to comply with the Fire Department regulations; and such hose as said department requires.

A new asbestos curtain, as approved by the Bureau of Buildings, must be provided.

Reduce the seating capacity of the top gallery to 175, and remove the remaining seats until the proper exits are provided.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All draperies, curtains and other hangings must be removed from in front of the exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which each exit leads, and must be of the size required by the Building Code.

Olympic Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside, which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required, must be provided, and such changes as necessary to safeguard the public must be made in the present fire-escapes.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Sprinkler system must be provided.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use, and the points to which the exits lead.

All draperies, curtains and other hangings must be removed from in front of exits.

Discontinue the use of the space under the stage for the storage of scenery and other materials.

London Theatre.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times; and no fasteners which require the use of keys will be permitted.

An asbestos curtain, satisfactory to the Bureau of Buildings, must be provided, properly hung, and running on iron sheaves and in iron grooves.

The dressing rooms must be separated from the stage by a fire wall, with fireproof doors on the necessary openings. Dressing rooms placed under the stage cannot be considered as being separated from the stage by a fire wall unless the stage floor is fireproof.

Additional exits, as required by the Bureau of Buildings, must be provided.

Provide exits at the stage end of the auditorium, at the orchestra floor.

Provide separate exits from the balcony and gallery.

Provide proper exits from the fly galleries.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Automatic skylights, over the stage, must be provided.

Reduce the seating capacity of the top gallery to two hundred (200) until proper exits are provided, and replace the benches in the top gallery with chairs, properly spaced and arranged.

Seats should be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six seats intervening between any one seat and an aisle on either side, and so that the aisles will have the widths required by the Building Code.

Remove the boilers and heating apparatus from under the stage.

Close entirely with brickwork the openings in the proscenium wall above the stage level.

Wood in rigging loft must be covered with metal, or rigging loft built of iron.

Wire nets must be placed under automatic skylights.

Partitions, shelves and doors of dressing rooms must be covered with metal, or made of incombustible materials.

All draperies, curtains and other hangings must be removed from in front of exits.

All exits must be properly marked by letters and numbers, and lighted by red lights.

Diagrams on programs must be made to show the proper location of the exits actually in use and the points to which each exit leads; and must be of the size required by the Building Code.

West End Theatre.

Discontinue the use of the frame dressing room under the stage.

Remove the rubbish stored under the stage.

Discontinue the use of the space under the stage for the storage of scenery.

All doors from the theatre must be made to open outwardly, and must be provided with fastenings on the inside which are readily opened at any and all times, and which are uniform throughout the building; and no fasteners which require the use of keys will be permitted.

Wood partitions at the rear of the orchestra must be removed.

Discontinue the use of the carpenter shop in the fly gallery.

All draperies, curtains and other hangings must be removed from in front of exits.

Connect the present fire-escapes, in the courts, with the windows from the fly gallery, so as to afford means of exit from the same.

That the wooden benches in the gallery be removed and replaced by chairs so arranged that they shall be not less than thirty-two (32) inches from back to back, and not more than six (6) seats intervene between any one seat and an aisle on either side; or that the present benches be divided by separating arms or partitions so that not more than six (6) seats intervene between any one seat and the nearest aisle, and that the aisles have the widths required by the Building Code.

That the diagrams on programs be made to show the exact location of the exits actually in use; the points to which each exit leads, and that they be not less than fifteen (15) square inches in size.

That the storage of scenery, rubbish, cans, etc., in the side courts, be discontinued, and that they be kept free from obstructions at all times.

That all openings in the proscenium wall, and all openings between the scenery, property, dressing rooms and the stage, be provided with suitable automatic fireproof doors.

That the skylights over the stage be made to work automatically.

That the asbestos curtain be adjusted so that it will work automatically.

That the storage of scenery and other inflammable material on, under and above the stage, and in the two tunnels under the auditorium, be discontinued.

That the carpenter shop and the musicians' dressing room, located beneath the stage, be removed.

That the use of the gas jets and gas stoves beneath the stage be discontinued.

That a tank, with a capacity of not less than 5,000 gallons, be provided on the roof, to supply water for the stand-pipe equipment.

That the use of gas in the dressing rooms be discontinued; or that the size of the jets be so reduced and the jets be so protected as to preclude danger of fire; that all clothes racks be removed from in front of said gas fixtures.

That all clothes racks and other obstructions be removed from in front of dressing room windows used as emergency fire-escapes.

That all exits be properly marked by letters and numbers, and lighted by red lights.

That an exit from the fly gallery, other than across the stage, be provided.

That the seats be rearranged so that they shall be not less than thirty-two (32) inches from back to back; that not more than six (6) seats intervene between any one seat and an aisle on either side, and that the widths of the aisles be made to conform with the requirements of the Building Code.

The Gotham.

All doors from the theatre must be made to open outwardly, and each door or pair of doors must be provided with a simple fastening on the inside, so that the door or doors can be readily opened at any and all times; no fasteners which require the use of keys will be permitted; no door or double door must have more than one fastening; all fasteners must be uniform throughout the building.

Exit signs, of proper size, and marked by red lights, must be placed over each exit.

Diagrams on programs must be of the size required by the Building Code; must have the exits marked and numbered to correspond with the numbers over the exits, and must indicate to what points the exits lead.

Side courts must be properly lighted during the performance by lights, on an independent circuit.

Provide steps to the exits from the gallery to the side courts.

Remove the lock requiring key from the street and of exit No. 2.

Remove bolts on the outside of doors in lobby.

Doors to courts on One Hundred and Twenty-sixth street must be thrown open after each performance, for the use of the audience.

All draperies, curtains and other hangings must be removed from in front of exits.

The asbestos curtain must be made to run in steel grooves secured to the proscenium wall, and must be made automatic, and must be properly hung to the satisfaction of the Bureau of Buildings.

Remove or recess the pipes and radiators now obstructing the easterly passage to One Hundred and Twenty-fifth street.

Provide hand rails for stairs from the gallery.

Automatic skylights must be provided over the stage, and the ropes for the same must be brought to one point at the stage level, and properly marked.

Rigging loft must be built entirely of fireproof materials.

Provide proper guards for all automatic fireproof doors.

Shelves, tables, doors and door frames of dressing rooms must be covered with metal, or made of incombustible materials.

Proper width of passageway must be provided between the rail of the stairs in the gallery and the back of the seats.

All border lights must be hung by means of wire cables or metal chains, as required by the Building Code.

Wire nets must be placed under automatic skylights.

The Grotto.

The use of the basement or cellar, without a license, as a place for theatrical performances or concerts, is forbidden.

The stage and other combustible materials must be removed from the premises.

Comedy Theatre.

The seats must be rearranged so that they shall be not less than 32 inches from back to back, and shall have not more than six (6) seats intervening between any one seat and an aisle on either side; and the aisles must have the widths required by the Building Code.

All radiators and other obstructions must be removed from the aisles.

The use of the space beneath the stage as a paint shop, storage place for wood, papers, boxes and other inflammable materials must be discontinued.

Colonial Music Hall.

All stage scenery, curtains and decorations made of combustible material, and all woodwork on or about the stage, shall be painted or saturated with some non-combustible material, or otherwise rendered safe against fire.

All draperies, curtains and other hangings must be removed from in front of exits.

Remove from all passageways used as means of exit, all chairs, furniture coverings and other obstructions forthwith.

